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PART II

DEPARTMENT OF THE INTERIOR

Mining Enforcement and Safety Administration

■

HEALTH AND SAFETY STANDARDS FOR METAL AND NONMETAL MINES AND MILLS

DEPARTMENT OF THE INTERIOR

Mining Enforcement and Safety Administration

[30 CFR Parts 55, 56, 57]

NEW AND REVISED HEALTH AND SAFETY STANDARDS

Notice of Proposed Rulemaking

Notice is hereby given that pursuant to the authority vested in the Secretary of the Interior under section 6 of the Federal Metal and Nonmetallic Mine Safety Act (30 U.S.C. 725) to develop, revise, and promulgate health and safety standards for the purpose of the protection of life, the promotion of health and safety, and the prevention of accidents in metal and nonmetal mines and mills, it is proposed to amend Parts 55, 56, and 57, Subchapter N, Chapter I, Title 30, Code of Federal Regulations by revising certain existing standards and adding certain new definitions, deleting or revising certain advisory standards and making them mandatory, and revising and adding new mandatory standards relating to ground control; fire prevention and control; ventillation and radiation; loading, hauling, dumping; man hoisting; travelways and escapeways; electricity; personal protection; miscellaneous; and gassy mines. These standards have been developed after consultation with the Federal Metal and Nonmetal Mine Safety Advisory Committee appointed pursuant to section 7 of the Act (30 U.S.C. 726). In accordance with section 10(a) of the Federal Advisory Committee Act (5 U.S.C. Appendix I (Supp. V 1975)) these standards were included in an agenda which was made available to the public, discussed during an open meeting of the Advisory Committee with timely notices of such meetings published in the FEDERAL REGISTER, and interested persons were permitted to attend, appear before, and file statements with the Advisory Committee.

Each standard which is to be a mandatory standard is so designated by the word "Mandatory" which appears at the beginning of the subsection in which the standard is prescribed. If the Federal Metal and Nonmetal Mine Safety Advisory Committee has recommended a mandatory standard, the standard is preceded by the word "Mandatory" and the letters "MNMSAC" in this manner "Mandatory. MNMSAC.—".

Under the provisions of subsection (e) of section 6 (30 U.S.C. 725(e)) and in accordance with the provisions of subsection (d) of section 6 of the Act (30 U.S.C. 725(d)), any persons who may be adversely affected by a proposed health and safety standard which is designated as a mandatory standard under subsections (b) and (c) of section 6 of the Act (30 U.S.C. 725 (b) and (c)), which has not been recommended as a mandatory standard by the Federal Metal and Nonmetal Mine Safety Advisory Committee, may file with the Secretary on or before the last day of the period herein fixed for the submission of written data, views, or arguments, written objections stating the grounds for such objections and requesting a public hearing on those objections subject to the provisions of the Administrative Procedure Act (5 U.S.C. 556, 557).

Under subsection (e) of section 6 of the Act proposed mandatory standards which have been recommended by the Federal Metal and Nonmetal Mine Safety Advisory Committee are not subject to public hearings.

The Mining Enforcement and Safety Administration (MESA) and the Occupational Safety and Health Administration (OSHA) entered into a Memorandum of Understanding on April 22, 1974, to (1) clarify the jurisdictional responsibility of each agency and (2) provide a procedure for the coordination and adoption of safety standards which have significant application of working conditions in mines and mills subject to the Federal Metal and Nonmetallic Mine Safety Act. The Memorandum of Understanding was published in the FEDERAL REGISTER on Friday, July 26, 1974 (39 FR 27382–27384).

In accordance with the requirements of Article D1 (a) and (b) of the Memorandum, MESA personnel consulted with representatives of OSHA regarding those OSHA standards promulgated by the Secretary of Labor as of April 22, 1974, which may have a significant application to mines and mills subject to the Federal Metal and Nonmetallic Mine Safety Act, and are not covered by mandatory standards promulgated by the Secretary of the Interior prior to the effective date of the Memorandum. After such consultations held on June 13 and October 4, 1974, MESA submitted a list identifying those OSHA standards that are not covered by mandatory standards applicable to metal and nonmetal mining and milling operations other than coal and lignite mining. Article D1(c) provides further that after determining those OSHA standards which may have significant application to working conditions in mines and mills subject to the Federal Metal and Nonmetallic Mine Safety Act, the Secretary of the Interior would publish in the FEDERAL REGISTER (1) those standards which the Secretary proposes to publish without change, and (2) those standards which he proposes to adopt with modification or revision because specific conditions associate with the metal and nonmetal mining industries warrant such modification or revision. The Memorandum also provides that the Secretary would publish the text of the proposed modified or revised standards and indicates the reasons for the modifications or revisions.

A comparison has been made between the substantive requirements of each proposed new and revised definition and mandatory standard with the corresponding OSHA definition and standard. In each instance, the proposed definition or mandatory standard affords at least the same degree of health and safety protection to the individuals working in the metal and nonmetal mining industries as its counterpart OSHA definition or standard affords those persons working in the general and construction industries subject to the Occupational Safety and Health Act.

Listed below are the action numbers of proposed definitions and mandatory standards (listed proposals) that have corresponding OSHA definitions and standards.

Part 55—1, 2, 3, 4, 8, 9, 11, 13, 39, 40, 73, 88, 89, 90, 91, 92, and 93.

Part 56—94, 95, 96, 97, 101, 102, 104, 106, 132, 133, 166, 181, 182, 183, 184, 185, and 186.

Part 57—188, 189, 191, 192, 196, 201, 202, 204, 206, 215, 224, 225, 226, 227, 228, 258, 291, 306, 307, 308, 309, 310, 311, and 336.

The listed proposals identified above include definitions for the electrical terms "circuit breaker," "conductor," "insulated," and "insulation," and, proposed mandatory safety standards concerning such mining activities as secondary drilling and blasting of material, scaling and scaling bars, rock bolt installation and torquing of rock bolts, shaft sets, blocking and wedging of timbers used for ground support in underground mining operations, criteria for automatically-actuated fire suppression systems on unattended equipment used in underground mining operations, and the location of trolley wires and trolley feeder wires in underground gassy mines. Also covered by the listed proposals are mandatory health standards relating to quick-drenching facilities for flushing of eyes and body, potable drinking water, clean and safe workplaces, warning signs, and barricades in areas where health and safety hazards exist, receptacles for disposal of waste food and associated matrial, marking and labeling toxic materials, prohibiting eating and drinking in toilets and areas exposed to toxic materials, and several other proposed health standards relating to radon daughters and radon gas, including the wearing of approved respirators, conducting gamma radiation surveys, and posting areas with radon daughters in excess of 1.0 WL against unauthorized entry and designating such areas by signs indicating that respirators must be worn.

The text of the listed proposals are like, but not identical with, their corresponding OSHA definitions and standards for several reasons. The main reasons for this difference in wording are as follows:

The listed proposals are designed primarily as performance-oriented standards. They are directed toward eliminating recognized hazards wherever practicable and neutralizing other hazards. They provide certain definite requirements that delineate the responsibilities of the mine operator to protect mine workers. The form and philosophy of the listed proposals are different from that used to develop OSHA standards. The listed proposals are generally short and concise statements that are readily understandable by persons working in the metal and nonmetal mining industries.

With the exception of listed proposals 40, 133, and 258, relating to quick-

drenching facilities, and proposal 224 concerning radon daughter concentrations in excess of 0.3 WL in underground mining operations, the language for each of the listed proposals are recommended to the Secretary of the Interior by the Federal Metal and Nonmetal Mine Safety Advisory Committee. The Advisory Committee members considered each definition and mandatory standard on the basis of recognized hazards in metal and nonmetal mining and the needs of workers in the metal and nonmetal mining industries. Thus, the vocabulary and wording recommended by by the Advisory Committee are designed specifically for metal and nonmetal mining operations by representatives of mine management, mine workers, and State agencies charged with health and safety responsibilities. The Secretary has adopted the language recommended to him for the listed proposals and so designated them by the letters "MNMSAC" under the rulemaking provisions of section 6 (a), (b), and (c) of the Federal Metal and Nonmetallic Mine Safety Act.

The requirements in listed proposals 40, 133, and 258, that quick-drenching facilities for flushing of the eyes and body must be available for immediate emergency use where injurious corrosive materials are used or handled, contain substantially the same language as the corresponding OSHA provision. The wording of the OSHA standard has been reorganized and restated to provide more concise standards. Listed proposal 224 applies to underground operations of underground mines where radon daughter concentrations in excess of 0.3 WL are found in active workings. This proposal, in effect, upgrades and expands the corresponding OSHA standard to provide protection equivalent to or more protection than the OSHA provision by requiring that radon daughter sampling equipment and a competent person to make radon daughter measurements are available on each shift, that alpha detectors be calibrated prior to initial use and thereafter at intervals not to exceed six months, and that the most recent calibration record for each instrument is to be kept with the instrument and available for inspection. Also, the procedure for sampling and calibrating the sampling equipment must be in accordance with section 14 of American National Standards Institute (ANSI) N-13.8-1973.

Interested persons may submit, on or before March 14, 1977, written data, views, arguments, and objections including a request for public hearing on those proposed mandatory standards not recommended by the Federal Metal and Nonmetallic Mine Safety Advisory Committee, to the Administrator, Mining Enforcement and Safety Administration, Department of the Interior, Room 618, Ballston Tower No. 3, 4015 Wilson Boulevard, Arlington, Virginia 22203.

In consideration of the foregoing, it is proposed to amend Parts 55, 56, and 57 of Subchapter N, Chapter I, Title 30, Code of Federal Regulations, as set forth below.

The Department of the Interior has determined that this document does not contain a major proposal requiring preparation of an Inflation Impact Statement under Executive Order 11821 and OMB Circular A-107.

Dated: January 19, 1977.

RAYMOND A. PECK, JR.,
Deputy Assistant Secretary of the Interior.

PART 55—HEALTH AND SAFETY STANDARDS—METAL AND NONMETALLIC OPEN PIT MINES

§ 55.2 [Amended]

A. Section 55.2 "Definitions" is proposed to be amended as follows:

1. It is proposed to add a definition of "Circuit breaker" as follows: Circuit breaker. MNMSAC.—"Circuit breaker" means a device designed to open and close a circuit by nonautomatic means and to open the circuit automatically on a predetermined overcurrent setting without injury to itself when properly applied within its rating.

2. It is proposed to add a definition of "Conductor" as follows: Conductor. MNMSAC.—"Conductor" means a material, usually in the form of a wire, cable, or bus bar, capable of carrying an electric current.

3. It is proposed to add a definition of "Insulated" as follows: Insulated. MNM SAC.—"Insulated" means separated from other conducting surfaces by a dielectric substance permanently offering a high resistance to the passage of current and to disruptive discharge through the substance. When any substance is said to be insulated, it is understood to be insulated in suitable manner for the conditions to which it is subjected. Otherwise, it is, within the purpose of this definition, uninsulated. Insulating covering is one means for making the conductor insulated.

4. It is proposed to add a definition of "Insulation" as follows: Insulation. MN MSAC.—"Insulation" means a dielectric substance offering a high resistance to the passage of current and to disruptive discharge through the substance.

5. It is proposed to add a definition of "Overcurrent" as follows: Overcurrent. MNMSAC.—"Overcurrent" means an abnormal current that is greater than the full load value of the circuit.

6. It is proposed to add a definition of "Overload" as follows: Overload. MNM SAC.—"Overload" means that current which will cause an excessive or dangerous temperature in the conductor or conductor insulation.

7. It is proposed to add a definition of "Short circuit" as follows: Short circuit. MNMSAC.—"Short circuit" means an abnormal connection of relatively low resistance, whether made accidentally or intentionally, between two points of different potential in a circuit.

§ 55.3 [Amended]

B. Section 55.3 "Ground control" is proposed to be amended as follows:

8. It is proposed to revise and renumber advisory standard 55.3-11 and make it mandatory as follows:

55.3-50 *Mandatory.* MNMSAC.—Material, other than hanging material, to be broken by secondary drilling and blasting, or by any other method shall be positioned or blocked to prevent hazardous movement before persons commence breaking operations. Persons who perform those operations shall work from a location where, if movement of material occurs, those persons will not be endangered.

9. It is proposed to add a new mandatory standard 55.3-51 as follows:

55.3-51 *Mandatory.* MNMSAC.—A scaling bar of sufficient length to place the user out of danger of falling material shall be provided at each working place, where manual scaling may be required. The scaling bar shall be blunt on one end. Picks or other short tools shall not be used for scaling when their use places the user in danger of falling material.

10. It is proposed to add a new mandatory standard 55.3-52 as follows:

55.3-52 *Mandatory.*—When rock bolting is a part of the mining cycle, rock bolts shall be installed as soon as possible after an area is exposed. Blasting shall be scheduled so that a minimal time will elapse between exposure of ground by blasting and installation of bolts.

11. It is proposed to add a new mandatory standard 55.3-53 as follows:

55.3-53 *Mandatory.* MNMSAC.—Rock-bolt installation requiring torquing shall be torqued to a value within the range determined from information of tests in the strata in which the rock bolt assembly is used. In no case shall installation torques cause bolt tensions that would exceed the yield point or anchorage capacity of the rock bolt assembly being used.

12. It is proposed to add a new mandatory standard 55.3-54 as follows:

55.3-54 *Mandatory.* MNMSAC.—When rock bolts are used as a means of ground support, anchorage pull-test procedures shall be established and tests shall be conducted to determine anchorage capacity of rock-bolt installations. Test results shall be set forth in writing and made available to the Secretary or his duly authorized representative.

13. It is proposed to add a new mandatory standard 55.3-55 as follows:

55.3-55 *Mandatory.* MNMSAC.—In installing point-anchor rock bolts: (a) A torque test shall be conducted on at least every fourth installed bolt.

(b) Torque testing shall be conducted immediately after bolt installation.

(c) If the recommended torque has not been achieved, the equipment used to install the bolt shall be adjusted and the next bolt installed shall then be tested.

(d) If the recommended torque has not been achieved on the majority of bolts installed in a working place through equipment adjustment, supplemental support such as longer roof bolts with adequate anchorage, steel or wood sets, or cribs shall be installed.

14. It is proposed to add a new mandatory standard 55.3-57 as follows:

55.3-56 *Mandatory.* MNMSAC.—Rock bolt hole drill bits shall be easily identifiable by sight or feel and diameters shall be within a tolerance of ±0.030-inches of the manufacturer's recommended hole diameter for the anchor used.

15. It is proposed to add a new mandatory standard 55.3-57 as follows:

55.3–57 *Mandatory.* MNMSAC.—Washers if used in rock-bolt assemblies to reduce friction between the bolt head and the bearing plate shall: (a) Have hardness in the range of 35–45 HRC (Hardness Rockwell C Scale).

(b) Conform to the shape of the bolt head and bearing plate.

(c) Have sufficient strength to withstand loads up to the yield point of the rock bolt.

16. It is proposed to add a new mandatory standard 55.3–58 as follows:

55.3–58 *Mandatory.*—Alignment compensating devices shall be placed between the bolt head and the bearing plate where the angle between the bolt axis and the normal to (perpendicular) the bearing plate surface is more than 5 degrees.

§ 55.9 [Amended]

C. Section 55.9 "Loading, hauling, dumping" is proposed to be amended as follows:

17. It is proposed to revoke advisory standard 55.9–18. MNMSAC.

18. It is proposed to revise advisory standard 55.9–35 and make it mandatory as follows:

55.9–35 *Mandatory.* MNMSAC. — Movements of two or more pieces of rail equipment operating independently on the same track shall be suitably controlled for safe operation.

19. It is proposed to revise advisory standard 55.9–46 and make it mandatory as follows:

55.9–46 *Mandatory.* MNMSAC.—Backpoling of trolleys shall be avoided wherever possible; but when necessary, backpoling shall be done only at slow speeds.

20. It is proposed to revise advisory standard 55.9–56 and make it mandatory as follows:

55.9–56 *Mandatory.* MNMSAC. — Where necessary, bumper blocks or the equivalent shall be provided at all track dead-ends.

21. It is proposed to revise advisory standard 55.9–57 and make it mandatory as follows:

55.9–57 *Mandatory.* MNMSAC.—Grizzlies, grates, and other stationary sizing devices shall be anchored securely.

22. It is proposed to add a new mandatory standard 55.9–72 as follows:

55.9–72 *Mandatory.* MNMSAC.—Persons attempting to free hangups shall be experienced persons who understand the hazards involved.

23. It is proposed to add a new mandatory standard 55.9–73 as follows:

55.9–73 *Mandatory.* MNMSAC.—Defective equipment, removed from service as unsafe to operate, shall be tagged to prohibit further use until repairs are completed.

§ 55.12 [Amended]

D. Section 55.12 "Electricity" is proposed to be amended as follows:

24. It is proposed to revise mandatory standard 55.12–1 as follows:

55.12–1 *Mandatory.*—Electrical circuits and equipment shall be protected against overloads and short circuits by automatic-trip circuit breakers or fuses. Such circuit breakers or fuses shall be capable of interrupting overloads and short circuits without damage to the circuit or equipment. Overload protective devices shall open all ungrounded conductors of the circuit whenever any one conductor becomes overloaded. Thermal devices used to protect the equipment and circuits against overloads shall be backed up by short circuit protection.

25. It is propsed to revise mandatory standard 55.12–3 as follows:

55.12–3 *Mandatory.*—Individual overload and short-circuit protection shall be provided for the trailing cables of mobile equipment.

26. It is proposed to revise mandatory standard 55.12–5 as follows:

55.12–5 *Mandatory.* MNMSAC.—Mobile equipment shall not run over power conductors, nor shall loads be dragged over power conductors, unless the conductors are properly bridged or protected.

27. It is proposed to revise advisory standard 55.12–6 and make it mandatory as follows:

55.12–6 *Mandatory.* MNMSAC.—Distribution boxes shall be provided with a disconnecting device for each branch circuit. Such disconnecting devices shall be equipped or designed in such a manner that it can be determined by visual observation that the circuit is deenergized when such devices are open, and shall be labeled to show which units they control.

28. It is proposed to revise advisory standard 55.12–8 and make it mandatory as follows:

55.12–8 *Mandatory.* MNMSAC.—Power wires and cables shall be insulated adequately where they pass into or out of electrical compartments. Cables shall enter metal frames of motors, splice boxes, and electrical compartments only through proper fittings. When insulated wires, other than cables, pass through metal frames, the holes shall be substantially bushed with insulated bushings.

29. It is proposed to revise advisory standard 55.12–10 and make it mandatory as follows:

55.12–10 *Mandatory.* MNMSAC.—Telephone and low-potential signal wire shall be protected, by isolation or additional insulation, from contacting energized power conductors or any other power source.

30. It is proposed to revise mandatory standard 55.12–11 as follows:

55.12–11 *Mandatory.* MNMSAC.—High-potential electrical conductors shall be covered, insulated, or placed to prevent contact with low potential conductors.

31. It is proposed to revise advisory standard 55.12–12 and make it mandatory as follows:

55.12–12 *Mandatory.* MNMSAC.—The potential on bare signal wires accessible to contact by persons shall not exceed 40 volts.

32. It is proposed to revise advisory standard 55.12–13 and make it mandatory as follows:

55.12–13 *Mandatory.* MNMSAC.—Permanent splices and repairs made in power cables, including the ground conductor where provided, shall be: (a) Mechanically strong with electrical conductivity as near as possible to that of the original,

(b) Insulated to a degree at least equal to that of the original, and sealed to exclude moisture, and

(c) Provided with damage protection as near as possible to that of the original, including good bonding to the outer jacket.

33. It is proposed to revise mandatory standard 55.12–14 as follows:

55.12–14 *Mandatory.* MNMSAC.—Power cables energized to potentials in excess of 150 volts, phase-to-ground, shall not be moved with equipment unless sleds or slings, insulated from such equipment, are used. When such energized cables are moved manually, insulated hooks, tongs, ropes, or slings shall be used unless suitable protection for persons is provided by other means. This does not prohibit pulling or dragging of cable by the equipment it powers when the cable is physically attached to the equipment by suitable mechanical devices, and the cable is insulated from the equipment in conformance with other standards in this Part.

34. It is proposed to revise mandatory standard 55.12–16 as follows:

55.12–16 *Mandatory.* MNMSAC.—Electrical equipment shall be deenergized before work is done on such equipment. Power switches shall be locked out or other measures taken which shall prevent the equipment from being energized without the knowledge of the individuals working on it. Suitable warning notices shall be posted at the power switch and signed by the individuals who are to do the work. Such locks or preventive devices shall be removed only by the persons who installed them or by authorized personnel.

35. It is proposed to revise mandatory standard 55.12–28 as follows:

55.12–18 *Mandatory.* MNMSAC.—Continuity and resistance of grounding systems shall be tested immediately after installation, repair, and modification; and annually thereafter. A record of the most recent tests shall be made available to the Secretary.

36. It is proposed to revise advisory standard 55.12–34 and make it mandatory as follows:

55.12–34 *Mandatory.* MNMSAC.—Portable extension lights, and other lights that by their location present a shock or burn hazard, shall be guarded.

37. It is proposed to revise advisory standard 55.12–42 and make it mandatory as follows:

55.12–42 *Mandatory.* MNMSAC.—Both rails shall be bonded or welded at every joint and rails shall be crossbonded at least every 200 feet if the track serves as the return trolley circuit. When rails are moved, replaced, or broken bonds are discovered, they shall be rebonded within three working shifts.

38. It is proposed to revoke advisory standard 55.12–70, and to revise advisory standard 55.12–69 and make it mandatory as follows:

55.12–69 *Mandatory.* MNMSAC.—Each ungrounded power conductor or telephone wire directly exposed to lightning that leads underground shall be equipped with suitable lightning arrestors of approved type within 100 feet of the point where the circuit enters the mine. Lightning arrestors shall be connected to a low resistance grounding medium on the surface and shall be separated from neutral grounds by a distance of not less than 25 feet.

§ 55.15 [Amended]

E. Section 55.15 "Personal protection" is proposed to be amended as follows.

39. It is proposed to revise advisory standard 55.15–6 and make it mandatory as follows:

55.15–6 *Mandatory.* MNMSAC. — Special protective equipment and clothing shall be provided, maintained in a sanitary and reliable condition and used whenever (1) hazards of process or environment, (2) chemical hazards, (3) radiological hazards, or (4) mechanical irritants are encountered in a manner capable of causing injury or impairment.

40. It is proposed to add a new mandatory standard 55.15–14 as follows.

55.15–14 *Mandatory.*—Quick-drenching facilities for flushing of the eyes and body shall be provided for immediate emergency use within the work area at operations where injurious corrosive materials are used or handled.

§ 55.19 [Amended]

F. Section 55.19 "Man hoisting" is proposed to be amended as follows:

41. It is proposed to revise mandatory standard 55.19–7 as follows:

55.19–7 *Mandatory.*—All hoists shall be provided with devices to prevent overtravel. Hoists for shafts exceeding 100 feet in depth also shall be provided with overspeed devices.

(a) The overtravel devices shall: (1) Be directly activated by the conveyance travel, or be directly driven from the hoist drum and synchronized with the movement of the conveyance;

(2) When activated, cause the hoist drum or traction wheel brakes to bring the conveyance to a safe stop; and

(3) Be provided with back-out switches.

(b) The overspeed devices shall: (1) Be directly driven from the hoist drum;

(2) When activated, cause the hoist drum or traction wheel brakes to bring the conveyance to a safe stop;

(3) Activate the control at a setting not to exceed the rated man-hoisting speed by more than 15 percent; and

(4) Monitor effectively the speed of the conveyance at any point of its travel so that safe travel and safe stops can be effected.

42. It is proposed to revised advisory standard 55.19–8 and make it mandatory as follows:

55.19–8 *Mandatory.* MNMSAC.—Where creep or slip may alter the effective position of safety devices, friction hoists shall be equipped with synchronizing mechanisms that recalibrate the overtravel devices and position indicators.

43. It is proposed to revise advisory standard 55.19–11 and make it mandatory as follows:

55.19–11 *Mandatory. MNMAC.*—Flanges on drums shall extend radially a minimum of 4 inches or three rope diameters beyond the last wrap, whichever is the lesser.

44. It is proposed to revise advisory standard 55.19–12 and make it mandatory as follows:

55.19–12 *Mandatory.* — Where grooved drums are used, the grooves shall be of the proper size and pitch for the ropes used. When new rope is installed, the grooves of grooved drums shall be machined as needed to assure the size and pitch recommended by the manufacturer for the new rope.

45. It is proposed to add a new mandatory standard 55.19–14 as follows:

55.19–14 *Mandatory.* MNMSAC.—In a friction hoist installation, tapered guides or other approved devices shall be installed above and below the limits of regular travel of the conveyance and arranged to prevent overtravel in the event of failure of other devices.

46. It is proposed to add a new mandatory standard 55.19–15 as follows:

55.19–15 *Mandatory.* — Hooks, shackles, and other attachments that are used to connect a conveyance to the hoist rope shall be individually approved for strength as exceeding rated breaking strength of the rope to which the hook, shackle, or other attachment is connected by a factor of at least 10 percent. Hooks, shackles, and other attachments that have been modified or repaired shall be reapproved before returning to service. Proof of such approval for each hook, shackle, and other attachments in use shall be available for inspection by the Secretary or his duly authorized representative.

47. It is proposed to add a new mandatory standard 55.19–16 as follows:

55.19–16 *Mandatory.*—All cages and skips used for lowering or raising of persons in a mine shall comply with the following:

(a) When a bonnet is required, the bonnet shall be made of not less than three-sixteenths ($^3/_{16}$) inch steel plate or of a noncombustible material having equivalent

(b) The cage or skip shall be provided with not less than one-eighth ($^1/_8$) inch sheet iron or steel side casing or a noncombustible material having equivalent strength.

(1) The side casing shall extend to a height of not less than five feet from the floor.

(2) The side casing shall have no openings through which a three-eighths ($^3/_8$) inch diameter rod will pass, excepting those openings that are necessary for signaling.

(c) The cage shall be equipped with a door, or doors, made of steel or other suitable noncombustible material that extends to a height of not less than five feet above the floor.

(1) All doors shall have no openings through which a three-eighths ($^3/_8$) inch diameter rod will pass, excepting those openings necessary for signaling, and they shall have a maximum clearance of two inches from the floor.

(2) All doors shall be arranged so that the doors cannot be opened outward from the cage.

(3) All doors shall be fitted with latches that will prevent accidental opening of a door.

(d) The bottom structural members and floor shall be constructed of steel or noncombustible material of sufficient strength to support the conveyance with maximum load at maximum emergency acceleration or deceleration.

(e) The conveyance shall be provided with an escape hatch in the top and/or an escape hatch in the side of the conveyance nearest the manway. Bonnets having a hinged movable section weighing no more than 150 pounds may be considered as having escape hatches.

(f) Cages or skips suspended by a single hoisting rope shall be provided with safety catches. These safety catches shall:

(1) Be of sufficient strength to safely stop and hold the conveyance with its maximum passenger load at any point in the shaft from the maximum man hoisting speed. The deceleration rate shall not exceed 3 times the acceleration due to gravity ($3g's$).

(2) Be performance tested before the conveyance is used to hoist men.

(3) Be visually inspected by a competent person each shift before the conveyance is used. The conveyance shall be rested on chairs or blocked at least once every seven operating days to test mechanical linkage.

48. It is proposed to add a new mandatory standard 55.19–17 as follows:

55.19–17 *Mandatory.* MNMSAC.—Each electric hoist shall be equipped with a manually-operable switch that will initiate emergency braking action to bring the conveyance and the counterbalance safely to rest. This switch shall be located within reach of the hoistman in case the manual controls of the hoist fail.

49. It is proposed to add a new mandatory standard 55.19–18 as follows:

55.19–18 *Mandatory.* MNMSAC.—An overtravel by-pass switch shall be installed on hoists, where necessary, that will allow the conveyance to travel through the overtravel position when the switch is held in the closed position by the hoistman. The overtravel by-pass switch shall return automatically to the open position when released by the hoistman.

50. It is proposed to revoke advisory standard 55.19–27 MNMSAC.

51. It is proposed to revise advisory standard 55.19–36 and make it mandatory as follows:

56.19–36 *Mandatory.*—Headframes shall be high enough to provide clearance for overtravel and safe stopping of the conveyances. This clearance shall be not less than 15 feet from the bottom of the sheaves or drum and the uppermost part of the highest rope connection of the conveyance when the conveyance is at its uppermost man-landing.

52. It is proposed to revise advisory standard 55.19–37 and make it mandatory as follows:

55.19–37 *Mandatory.*—Fleet angles shall not be greater than 1½ degrees. Fleet angles shall be not less than ½ degree unless a rope guiding device is used.

53. It is proposed to revise advisory standard 55.19–39 and make it mandatory as follows:

55.19–39 *Mandatory.*—Minimum diameters of head sheaves and hoist drums shall conform to the following specifications:

Rope construction	*Diameter of sheaves and drum times rope diameter*
6×7 Classification	72
6×17 Seale	56
6×19 Seale	51
6×21 Filler wire	45
6×25 Filler wire	41
6×31	38
6×37	33
6×25 type B, flattened strand	45
6×27 type H, flattened strand	45
6×30 type G, flattened strand	45
8×29 Seale	36
8×19 Warrington	31
18×7	51

Drum and sheave diameters shall comply with the rope manufacturer's recommendations for man hoisting applications when ropes of other constructions are used.

54. It is proposed to revise advisory standard 55.19–40 and make it mandatory as follows:

55.19–40 *Mandatory.* MNMSAC.—Head, idler, knuckle, and curve sheaves shall have grooves of proper contour for the specific rope diameter used.

55. It is proposed to revise mandatory standard 55.19–50 as follows:

55.19–50 *Mandatory.* MNMSAC.—Buckets used to hoist persons during vertical shaft sinking operations shall:

(a) Be securely attached to a crosshead when traveling in either direction between the lower and upper crosshead parking locations;

(b) Have overhead protection when the shaft depth exceeds 50 feet;

(c) Have sufficient depth or a suitably designed platform to transport persons safely in a standing position;

(d) Have devices to prevent accidental dumping where the bucket is supported by a bail attached to its lower half.

56. It is proposed to revise mandatory standard 55.19–54 as follows:

55.19–54 *Mandatory.* MNMSAC.—Where rope guides are used in shafts other than in shaft sinking operations, the rope guides shall be of a type of lock coil construction.

57. It is proposed to revise advisory standard 55.19–56 and make it mandatory as follows:

55.19–56 *Mandatory.* MNMSAC.—When automatic hoisting is used, a competent operator of the hoist shall be readily available at or near the hoisting device while any person is underground.

58. It is proposed to revise advisory standard 55.19–57 and make it mandatory as follows:

55.19–57 *Mandatory.* MNMSAC.—No person shall operate a hoist unless within the preceeding 12 months he has had a medical examination by a qualified, licensed physician who shall certify his fitness to perform this duty. Such certification shall be available at the mine.

59. It is proposed to revoke advisory standard 55.19–60. MNMSAC.

60. It is proposed to revise advisory standard 55.19–61 and make it mandatory as follows:

55.19–61 *Mandatory.* MNMSAC.—The safe speed for hoisting men shall be determined for each shaft, and this speed shall not be exceeded. Men shall not be hoisted at a speed faster than 2,500 feet per minute except in an emergency.

61. It is proposed to revise advisory standard 55.19–62 and make it mandatory as follows:

55.19–62 *Mandatory.* MNMSAC.—Maximum normal operating acceleration and deceleration shall not exceed 6 feet per second per second. During emergency braking, the deceleration shall not exceed 16 feet per second per second.

62. It is proposed to revise advisory standard 55.19–66 and make it mandatory as follows:

55.19–66 *Mandatory.* MNMSAC.—In shafts inclined over 45 degrees, management shall determine and post in the conveyance or at each shaft station the maximum number of persons permitted to ride in a hoisting conveyance at any one time. Each person shall be provided a minimum of 1.5 square feet of floor space.

63. It is proposed to revise advisory standard 55.19–67 and make it mandatory as follows:

55.19–67 *Mandatory.*—During shift changes, an authorized person shall be in charge of each man trip.

64. It is proposed to revise advisory standard 55.19–68 and make it mandatory as follows:

55.19–68 *Mandatory.* MNMSAC.—Men shall enter, ride, and leave conveyances in an orderly manner.

65. It is proposed to revise advisory standard 55.19–72 and make it mandatory as follows:

55.19–72 *Mandatory.*—When combinations of cages and skips are used in the same compartment, the skips shall be empty while men are being transported.

66. It is proposed to revise advisory standard 55.19–74 and make it mandatory as follows:

55.19–74 *Mandatory.*—Men shall not ride the bail, rim, bonnet, or crosshead of any shaft conveyance.

67. It is proposed to revise advisory standard 55.19–76 and make it mandatory as follows:

55.19–76 *Mandatory.* MNMSAC.—When men are hoisted, bucket speeds shall not exceed 500 feet per minute, and shall not exceed 200 feet per minute when within 100 feet of the intended station.

68. It is proposed to revise advisory standard 55.19–81 and make it mandatory as follows:

55.19–81 *Mandatory.*—Conveyances controlled by a hoistman, when not in use, shall be released and the conveyance shall be raised or lowered at least 10 feet from the floor of the landing.

69. It is proposed to add a new mandatory standard 55.19–83 as follows:

55.19–83 *Mandatory.* MNMSAC.—A manually operated device shall be installed on each electric hoist that will allow the conveyance or counterbalance to be removed from an overtravel position. Such device shall not release the brake, or brakes, holding the overtravelled conveyance or counterbalance until sufficient drive motor torque has been developed to assure movement of the conveyance or counterbalance in the correct direction only.

70. It is proposed to revise advisory standard 55.19–91 and make it mandatory as follows:

55.19–91 *Mandatory.*—Hoistmen shall not accept hoisting instructions by voice communication unless the regular signaling systems are out of order. During such an emergency one authorized person shall be designated to direct movement of the conveyance.

71. It is proposed to revise advisory standard 55.19–93 and make it mandatory as follows:

55.19–93 *Mandatory.*—A standard code of hoisting signals shall be adopted and used at each mine. The movement of a shaft conveyance on a "one bell" signal shall be prohibited.

72. It is proposed to revise advisory standard 55.19–102 and make it mandatory as follows:

55.19–102 *Mandatory.* MNMSAC.—A means shall be provided to guide the movement of a shaft conveyance.

73. It is proposed to revise advisory standard 55.19–106 and make it mandatory as follows:

55.19–106 *Mandatory.* MNMSAC.—Shaft sets shall be kept in good repair and clean of hazardous material.

74. It is proposed to revise advisory standard 55.19–111 and make it mandatory as follows:

55.19–111 *Mandatory.* MNMSAC.—Substantial fixed ladders shall be provided from the collar to as near the shaft bottom as practical during shaft-sinking operations, or an escape hoist powered by an emergency power source shall be provided. When persons are on the shaft bottom, a chain ladder, wire rope ladder, or other extension ladders shall be used from the fixed ladder or lower limit of the escape hoist to the shaft bottom.

75. It is proposed to revise advisory standard 55.19–121 and make it mandatory as follows:

55.19–121 *Mandatory.* MNMSAC.—Complete records shall be kept for three years of inspections, tests, and maintenance of shafts and hoisting equipment.

76. It is proposed to revise advisory standard 55.19–122 and make it mandatory as follows:

55.19–122 *Mandatory.* MNMSAC.—Parts used to repair hoists shall have properties that will insure the proper and safe function of the hoist.

77. It is proposed to revise advisory standard 55.19–123 and make it mandatory as follows:

55.19–123 *Mandatory.* MNMSAC.—Wire ropes shall be lubricated or treated with dressing as recommended or approved by the rope manufacturer.

78. It is proposed to revise advisory standard 55.19–124 and make it mandatory as follows:

55.19–124 *Mandatory.*—Ropes other than those on friction hoists shall be cut off and reconnected to the conveyance at regular intervals at least five times during the anticipated life of the rope, or more frequently if inspection shows it necessary; cutoff intervals shall not exceed 6 months for ropes with life of more than 3 years. At least 6 feet shall be cut from the rope above the highest connection; this portion shall be examined for corrosion, damage, wear, and fatigue.

79. It is proposed to revise advisory standard 55.19–125 and make it mandatory as follows:

55.19–125 *Mandatory.*—Hoist ropes wound on the drum in multiple layers shall be cut off and repositioned on the drum at least three times during the anticipated life of the hoist rope to distribute wear at change of layers and crossover points. The length of the cutoff at the drum end shall be at least ¾ of a wrap and shall not be a whole number multiple of the circumference of the drum.

80. It is proposed to revise advisory standard 55.19–126 and make it mandatory as follows:

55.19–126 *Mandatory.*—Ropes shall be calipered at least every two months to effectively determine the rate of wear and damage. Caliper measurements shall be taken:

(a) Immediately above the socket or clips and above the safety connection.

(b) Where the ropes rest on the sheaves.

(c) Where the ropes leave the drums when the conveyances are at the regular stopping points.

(d) Where a layer of rope begins to overlap another layer on the drum.

(e) At 100-foot intervals; measurements shall be made midway between the last previously calipered points.

81. It is proposed to revoke advisory standard 55.19–127. MNMSAC.

82. It is proposed to revise advisory standard 55.19–130 and make it mandatory as follows:

55.19–130 *Mandatory.*—Empty man conveyances shall be operated up and down shafts at least one round trip before:
(a) Hoisting men after any shaft or related equipment repairs, and
(b) Regular man trips.

83. It is proposed to revise advisory standard 55.19–130 and make it mantory as follows:

55.19–131 *Mandatory.*—Conveyance connections shall be inspected each day that they are in use.

84. It is proposed to revise advisory standard 55.19–132 and make it mandatory as follows:

55.19–132 *Mandatory.*—Safety catches shall be inspected daily; drop tests shall be made at the time of installation. Every operating day the cage shall be rested on chairs or proper blocking to check the operation or activation of the safety catches by allowing the rope to be slacked suddenly.

85. It is proposed to revise advisory standard 55.19–133 and make it mandatory as follows:

55.19–133 *Mandatory.* MNMSAC.—Operating shafts shall be inspected at least weekly. Idle shafts shall be inspected immediately before use.

86. It is proposed to revise advisory standard 55.19–134 and make it mandatory as follows:

55.19–134 *Mandatory.* MNMSAC.—Sheaves in operating shafts shall be inspected weekly and kept properly lubricated.

87. It is proposed to revise advisory standard 55.19–135 and make it mandatory as follows:

55.19–135 *Mandatory.* MNMSAC.—Rollers used in operating inclined shafts shall be lubricated, properly aligned, and kept in good repair.

§ 55.20 [Amended]

G. Section 55.20 "Miscellaneous" is proposed to be amended as follows:

88. It is proposed to revise mandatory standard 55.20–2 as follows:

55.20–2 Mandatory. MNMSAC.—An adequate supply of potable drinking water shall be provided at all active working areas.
(a) The common drinking cup and containers from which drinking water must be dipped or poured are prohibited.
(b) Where single service cups are supplied, a sanitary container for unused cups and a receptacle for used cups shall be provided.
(c) When water is cooled by ice, the ice shall either be of potable water or shall not come in contact with the water.
(d) Potable water outlets shall be posted.
(e) Potable water systems shall be constructed to prevent backflow or back-siphonage of non-potable water.

89. It is proposed to revise advisory standard 55.20–3 and make it mandatory as follows:

55.20–3 *Mandatory.* MNMSAC.—At all mining operations:
(a) Workplaces, passageways, storerooms, and service rooms shall be kept clean and orderly.
(b) The floor of every workplace shall be maintained in a clean and, so far as possible, a dry condition. Where wet processes are used, drainage shall be maintained, and false floors, platforms, mats, or other dry standing places shall be provided where practicable.
(c) Every floor, working place, and passageway shall be kept free from protruding nails, splinters, holes, or loose boards, as practicable.

90. It is proposed to add a new mandatory standard 55.20–11 as follows:

55.20–11 *Mandatory.* MNMSAC.—Areas where health or safety hazards exist that are not immediately obvious to employees shall be barricaded, or warning signs shall be posted at all approaches. Warning signs shall be readily visible, legible, display the nature of the hazard, and any protective action required.

91. It is proposed to add a new mandatory standard 55.20–12 as follows:

55.20–12 *Mandatory.* MNMSAC.—Toxic materials used in conjunction with or discarded from mining or milling of a product shall be plainly marked or labeled so as to positively identify the nature of the hazard and the protective action required.

92. It is proposed to add a new mandatory standard 55.20–13 as follows:

55.20–13 *Mandatory.* MNMSAC.—Receptacles with covers shall be provided and used for the disposal of waste food and associated materials. They shall be emptied frequently and shall be maintained in a clean and sanitary condition.

93. It is proposed to add a new mandatory standard 55.20–14 as follows:

55.20–14 *Mandatory.* MNMSAC.—No person shall be allowed to consume or store food or beverages in a toilet room nor in any area exposed to a toxic material.

PART 56—HEALTH AND SAFETY STANDARDS—SAND, GRAVEL, AND CRUSHED STONE OPERATIONS

§ 56.2 [Amended]

H. Section 56.2 "Definitions" is proposed to be amended as follows:

94. It is proposed to add a definition of "Circuit breaker" as follows:

Circuit breaker. MNMSAC.—"Circuit breaker" means a device designed to open and close a circuit by nonautomatic means and to open the circuit automatically on a predetermined overcurrent setting without injury to itself when properly applied within its rating.

95. It is proposed to add a definition of "Conductor" as follows:

Conductor. MNMSAC.—"Conductor" means a material, usually in the form of a wire, cable, or bus bar, capable of carrying an electric current.

96. It is proposed to add a definition of "Insulated" as follows:

Insulated. MNMSAC.—"Insulated" means separated from other conducting surfaces by a dielectric substance permanently offering a high resistance to the passage of current and to disruptive discharge through the substance. When any substance is said to be insulated, it is understood to be insulated in suitable manner for the conditions to which it is subjected. Otherwise, it is, within the purpose of this definition, uninsulated. Insulating covering is one means for making the conductor insulated.

97. It is proposed to add a definition of "Insulation" as follows:

Insulation. MNMSAC.—"Insulation" means a dielectric substance offering a high resistance to the passage of current and to the disruptive discharge through the substance.

98. It is proposed to add a definition of "Overcurrent" as follows:

Overcurrent. MNMSAC.—"Overcurrent" means an abnormal current that is greater than the full load value of the circuit.

99. It is proposed to add a definition of "Overload" as follows:

Overload. MNMSAC.—"Overload" means that current which will cause an excessive or dangerous temperature in the conductor or conductor insulation.

100. It is proposed to add a definition of "Short circuit" as follows:

Short circuit. MNMSAC.—"Short circuit" means an abnormal connection of relatively low resistance, whether made accidentally or intentionally, between two points of different potential in a circuit.

§ 56.3 [Amended]

1. Section 56.3 "Ground control" is proposed to be amended as follows:

101. It is proposed to revise and renumber advisory standard 56.3–11 and make it mandatory as follows:

56.3–50 *Mandatory.* MNMSAC.—Material, other than hanging material, to be broken by secondary drilling and blasting, or by any other method shall be positioned or blocked to prevent hazardous movement before persons commence breaking operations. Persons who perform those operations shall work from a location where, if movement of material occurs, those persons will not be endangered.

102. It is proposed to add a new mandatory standard 56.3–51 as follows:

56.3–51 *Mandatory.* MNMSAC.—A scaling bar of sufficient length to place the user out of danger of falling material shall be provided at each working place, where manual scaling may be required. The scaling bar shall be blunt on one end. Picks or other short tools shall not be used for scaling when their use places the user in danger of falling material.

103. It is proposed to add a new mandatory standard 56.3–52 as follows:

56.3–52 *Mandatory.*—When rock bolting is a part of the mining cycle, rock bolts shall be installed as soon as possible after an area is exposed. Blasting shall be scheduled so that a minimal time will elapse between exposure of ground by blasting and installation of bolts.

104. It is proposed to add a new mandatory standard 56.3–53 as follows:

56.3–53 *Mandatory.* MNMSAC.—Rock-bolt installation requiring torquing shall be torqued to a value within the range determined from information of tests in the

strata in which the rock bolt assembly is used. In no case shall installation torques cause bolt tensions that would exceed the yield point or anchorage capacity of the rock bolt assembly being used.

105. It is proposed to add a new mandatory standard 56.3–54 as follows:

56.3–54 *Mandatory.* MNMSAC. — When rock bolts are used as a means of ground support, anchorage pull-test procedures shall be established and tests shall be conducted to determine anchorage capacity of rock-bolt installations. Test results shall be set forth in writing and made available to the Secretary or his duly authorized representative.

106. It is proposed to add a new mandatory standard 56.3–55 as follows:

56.3–55 *Mandatory.* MNMSAC.—In installing point-anchor rock bolts:

(a) A torque test shall be conducted on at least every fourth installed bolt.

(b) Torque testing shall be conducted immediately after bolt installation.

(c) If the recommended torque has not been achieved, the equipment used to install the bolt shall be adjusted and the next bolt installed shall then be tested.

(d) If the recommended torque has not been achieved on the majority of bolts installed in a working place through equipment adjustment, supplemental support such as longer roof bolts with adequate anchorage, steel or wood sets, or cribs shall be installed.

107. It is proposed to add a new mandatory standard 56.3–56 as follows:

56.3–56 *Mandatory.* MNMSAC.—Rock bolt hole drill bits shall be easily identifiable by sight or feel and diameters shall be within a tolerance of ±0.030-inches of the manufacturer's recommended hole diameter for the anchor used.

108. It is proposed to add a new mandatory standard 56.3–57 as follows:

56.3–57 *Mandatory.* MNMSAC.—Washers if used in rock-bolt assemblies to reduce friction between the bolt head and the bearing plate shall:

(a) Have hardness in the range of 35–45 HRC (Hardness Rockwell C Scale).

(b) Conform to the shape of the bolt head and bearing plate.

(c) Have sufficient strength to withstand loads up to the yield point of the rock bolt.

109. It is proposed to add a new mandatory standard 56.3–58 as follows:

56.3–58 *Mandatory.*—Alignment compensating devices shall be placed between the bolt head and the bearing plate where the angle between the bolt axis and the normal to (perpendicular) the bearing plate surface is more than 5 degrees.

§ 56.9 [Amended]

J. Section 56.9 "Loading, hauling, dumping" is proposed to be amended as follows:

110. It is proposed to revoke advisory standard 56.9–18. MNMSAC.

111. It is proposed to revise advisory standard 56.9–35 and make it mandatory as follows:

56.9–35 *Mandatory.* MNMSAC.—Movements of two or more pieces of rail equipment operating independently on the same track shall be suitably controlled for safe operation.

112. It is proposed to revise advisory standard 56.9–46 and make it mandatory as follows:

56.9–46 *Mandatory.* MNMSAC.—Backpoling of trolleys shall be avoided wherever possible; but when necessary, backpoling shall be done only at slow speeds.

113. It is proposed to revise advisory standard 56.9–56 and make it mandatory as follows:

56.9–56 *Mandatory.* MNMSAC.—Where necessary, bumper blocks or the equivalent shall be provided at all track dead-ends.

114. It is proposed to revise advisory standard 56.9–57 and make it mandatory as follows:

56.9–57 *Mandatory.* MNMSAC.—Grizzlies, grates, and other stationary sizing devices shall be anchored securely.

115. It is proposed to add a new mandatory standard 56.9–72 as follows:

56.9–72 *Mandatory.* MNMSAC.—Persons attempting to free hangups shall be experienced persons who understand the hazards involved.

116. It is proposed to add a new mandatory standard 56.9–73 as follows:

56.9–73 *Mandatory.* MNMSAC.—Defective equipment, removed from service as unsafe to operate, shall be tagged to prohibit further use until repairs are completed.

K. Section 56.12 "Electricity" is proposed to be amended as follows:

117. It is proposed to revise mandatory standard 56.12–1 as follows:

56.12–1 *Mandatory.*—Electrical circuits and equipment shall be protected against overloads and short circuits by automatic-trip circuit breakers or fuses. Such circuit breakers or fuses shall be capable of interrupting overloads and short circuits without damage to the circuit or equipment. Overload protective devices shall open all ungrounded conductors of the circuit whenever any one conductor becomes overloaded. Thermal devices used to protect the equipment and circuits against overloads shall be backed up by short circuit protection.

118. It is proposed to revise mandatory standard 56.12–3 as follows:

56.12–3 *Mandatory.*—Individual overload and short-circuit protection shall be provided for the trailing cables of mobile equipment.

119. It is proposed to revise mandatory standard 56.12–5 as follows:

56.12–5 *Mandatory.* MNMSAC.—Mobile equipment shall not run over power conductors, nor shall load be dragged over power conductors, unless the conductors are properly bridged or protected.

120. It is proposed to revise advisory standard 56.12–6 and make it mandatory as follows:

56.12–6 *Mandatory.* MNMSAC.—Distribution boxes shall be provided with a disconnecting device for each branch circuit. Such disconnecting devices shall be equipped or designed in such a manner that it can be determined by visual observation that the circuit is deenergized when such devices are open, and shall be labeled to show which units they control.

121. It is proposed to revise advisory standard 56.12–8 and make it mandatory as follows:

56.12–8 *Mandatory.* MNMSAC.—Power wires and cables shall be insulated adequately where they pass into or out of electrical compartments. Cables shall enter metal frames of motors, splice boxes, and electrical compartments only through proper fittings. When insulated wires, other than cables, pass through metal frames, the holes shall be substantially bushed with insulated bushings.

122. It is proposed to revise advisory standard 56.12–10 and make it mandatory as follows:

56.12–10 *Mandatory.* MNMSAC.—Telephone and low-potential signal wire shall be protected, by isolation or additional insulation, from contacting energized power conductors or any other power source.

123. It is proposed to revise mandatory standard 56.12–11 as follows:

56.12–11 *Mandatory.* MNMSAC.—High-potential electrical conductors shall be covered, insulated, or placed to prevent contact with low potential conductors.

124. It is proposed to revise advisory standard 56.12–12 and make it mandatory as follows:

56.12–12 *Mandatory.* MNMSAC.—The potential on bare signal wires accessible to contact by persons shall not exceed 40 volts.

125. It is proposed to revise advisory standard 56.12–13 and make it mandatory as follows:

56.12–13 *Mandatory.* MNMSAC.—Permanent splices and repairs made in power cables, including the ground conductor where provided, shall be:

(a) Mechanically strong with electrical conductivity as near as possible to that of the original,

(b) Insulated to a degree at least equal to that of the original, and sealed to exclude moisture, and

(c) Provided with damage protection as near as possible to that of the original, including good bonding to the outer jacket.

126. It is proposed to revise mandatory standard 56.12–14 as follows:

56.12–14 *Mandatory.* MNMSAC.—Power cables energized to potentials in excess of 150 volts, phase-to-ground, shall not be moved with equipment unless sleds or slings, insulated from such equipment, are used. When such energized cables are moved manually, insulated hooks, tongs, ropes, or slings shall be used unless suitable protection for persons is provided by other means. This does not prohibit pulling or dragging of cable by the equipment it powers when the cable is physically attached to the equipment by suitable mechanical devices, and the cable is insulated from the equipment in conformance with other standards in this Part.

127. It is proposed to revise mandatory standard 56.12–16 as follows:

56.12–16 *Mandatory.* MNMSAC.—Electrical equipment shall be deenergized before work is done on such equipment. Power switches shall be locked out or other measures taken which shall prevent the equipment from being energized without the knowledge of the individuals working on it. Suitable warning notices shall be posted at the power switch and signed by the individ-

uals who are to do the work. Such locks or preventive devices shall be removed only by the persons who installed them or by authorized personnel.

128. It is proposed to revise mandatory standard 56.12–28 as follows:

56.12–28 *Mandatory.* MNMSAC.—Continuity and resistance of grounding systems shall be tested immediately after installation, repair, and modification; and annually thereafter. A record of the most recent tests shall be made available to the Secretary.

129. It is proposed to revise advisory standard 56.12–34 and make it mandatory as follows:

56.12–34 *Mandatory.* MNMSAC.—Portable extension lights, and other lights that by their location present a shock or burn hazard, shall be guarded.

130. It is proposed to revise advisory standard 56.12–42 and make it mandatory as follows:

56.12–42 *Mandatory.* MNMSAC.—Both rails shall be bonded or welded at every joint and rails shall be crossbonded at least every 200 feet if the track serves as the return trolley circuit. When rails are moved, replace, or broken bonds are discovered, they shall be re-bonded within three working shifts.

131. It is proposed to revoke advisory standard 56.12–70, and to revise advisory standard 56.12–69 and make it mandatory as follows:

56.12–69 *Mandatory.* MNMSAC.—Each ungrounded power conductor or telephone wire directly exposed to lightning that leads underground shall be equipped with suitable lightning arrestors of approved type within 100 feet of the point where the circuit enters the mine. Lightning arrestors shall be conducted to a low resistance grounding medium on the surface and shall be separated from neutral grounds by a distance of not less than 25 feet.

§ 56.15 [Amended]

L. Section 56.15 "Personal protection" is proposed to be amended as follows:

132. It is proposed to revise advisory standard 56.15–6 and make it mandatory as follows:

56.15–6 *Mandatory.* MNMSAC.—Special protective equipment and clothing shall be provided, maintained in a sanitary and reliable condition and used whenever (1) hazards of process or environment, (2) chemical hazards, (3) radiological hazards, or (4) mechanical irritants are encountered in a manner capable of causing injury or impairment.

133. It is proposed to add a new mandatory standard 56.15–14 as follows:

46.15–14 *Mandatory.*—Quick-drenching facilities for flushing of the eyes and body shall be provided for immediate emergency use within the work area at operations where injurious corrosive materials are used or handled.

M. Section 56.19 Man hoisting is proposed to be amended as follows:

134. It is proposed to revise mandatory standard 56.19–7 as follows:

56.19–7 *Mandatory.*—All hoists shall be provided with devices to prevent overtravel. Hoists for shafts exceeding 100 feet in depth also shall be provided with overspeed devices:

(a) The overtravel devices shall:

(1) Be directly activated by the conveyance travel, or be directly driven from the hoist drum and synchronized with the movement of the conveyance;

(2) When activated, cause the hoist drum or traction wheel brakes to bring the conveyance to a safe stop; and

(3) Be provided with back-out switches.

(b) The overspeed devices shall:

(1) Be directly driven from the hoist drum;

(2) When activated, cause the hoist drum or traction wheel brakes to bring the conveyance to a safe stop;

(3) Activate the control at a setting not to exceed the rated man-hoisting speed by more than 15 percent; and

(4) Monitor effectively the speed of the conveyance at any point of its travel so that safe travel and safe stops can be effected.

135. It is proposed to revise advisory standard 56.19–8 and make it mandatory as follows:

56.19–8 *Mandatory* MNMSAC.—Where creep or slip may alter the effective position of safety devices, friction hoists shall be equipped with synchronizing mechanisms that recalibrate the overtravel devices and position indicators.

136. It is proposed to revise advisory standard 56.19–11 and make it mandatory as follows:

56.19–11 *Mandatory.* MNMSAC.—Flanges on drums shall extend radially a minimum of 4 inches or three rope diameters beyond the last wrap, whichever is the lesser.

137. It is proposed to revise advisory standard 56.19–12 and make it mandatory as follows:

56.19–12 *Mandatory.*—Where grooved drums are used, the grooves shall be of the proper size and pitch for the ropes used. When new rope is installed, the grooves of grooved drums shall be machined as needed to assure the size and pitch recommended by the manufacturer for the new rope.

138. It is proposed to add a new mandatory standard 56.19–14 as follows:

56.19–14 *Mandatory.* MNMSAC.—In a friction hoist installation, tapered guides or other approved devices shall be installed above and below the limits of regular travel of the conveyance and arranged to prevent overtravel in the event of failure of other devices.

139. It is proposed to add a new mandatory standard 56.19–15 as follows:

56.19–15 *Mandatory.*—Hooks, shackles, and other attachments that are used to connect a conveyance to the hoist rope shall be individually approved for strength as exceeding rated breaking strength of the rope to which the hook, shackle, or other attachment is connected by a factor of at least 10 percent. Hooks, shackles, and other attachments that have been modified or repaired shall be reapproved before returning to service. Proof of such approval for each hook, shackle, and other attachments in use shall be available for inspection by the Secretary or his duly authorized representative.

140. It is proposed to add a new mandatory standard 56.19–16 as follows:

56.19–16 *Mandatory.*—All cages and skips used for lowering or raising of persons in a mine shall comply with the following:

(a) When a bonnet is required, the bonnet shall be made of not less than three-sixteenths ($^3/_{16}$) inch steel plate or of a noncombustible material having equivalent strength.

(b) The cage or skip shall be provided with not less than one-eighth ($^1/_8$) inch sheet iron or steel side casing or a noncombustible material having equivalent strength.

(1) The side casing shall extend to a height of not less than five feet from the floor.

(2) The side casing shall have no openings through which a three-eighths ($^3/_8$) inch diameter rod will pass, excepting those openings that are necessary for signaling.

(c) The cage shall be equipped with a door, or doors, made of steel or other suitable noncombustible material that extends to a height of not less than five feet above the floor.

(1) All doors shall have no openings through which a three-eighths ($^3/_8$) inch diameter rod will pass, excepting those openings necessary for signaling, and they shall have a maximum clearance of two inches from the floor.

(2) All doors shall be arranged so that the doors cannot be opened outward from the cage.

(3) All doors shall be fitted with latches that will prevent accidental opening of a door.

(d) The bottom structural members and floor shall be constructed of steel or noncombustible material of sufficient strength to support the conveyance with maximum load at maximum emergency acceleration or deceleration.

(e) The conveyance shall be provided with an escape hatch in the top and/or an escape hatch in the side of the conveyance nearest the manway. Bonnets having a hinged moveable section weighing no more than 150 pounds may be considered as having escape hatches.

(f) Cages or skips suspended by a single hoisting rope shall be provided with safety catches. These safety catches shall:

(1) Be of sufficient strength to safely stop and hold the conveyance with its maximum passenger load at any point in the shaft from the maximum man hoisting speed. The deceleration rate shall not exceed 3 times the acceleration due to gravity (3g's).

(2) Be performance tested before the conveyance is used to hoist men.

(3) Be visually inspected by a competent person each shift before the conveyance is used. The conveyance shall be rested on chairs or blocked at least once every seven operating days to test mechanical linkage.

141. It is proposed to add a new mandatory standard 56.19–17 as folows:

56.19–17 *Mandatory.* MNMSAC. — Each electric hoist shall be equipped with a manually-operable switch that will initiate emergency braking action to bring the conveyance and the counterbalance safely to rest. This switch shall be located within reach of the hoistman in case the manual controls of the hoist fail.

142. It is proposed to add a new mandatory standard 56.19–18 as follows:

56.19–18 *Mandatory.* MNMSAC.—An overtravel by-pass switch shall be installed on hoists, where necessary, that will allow the conveyance to travel through the overtravel position when the switch is held in the closed position by the hoistman. The overtravel by-pass switch shall return automatically to the open position when released by the hoistman.

143. It is proposed to revoke advisory standard 56.19–27. MNMSAC.

144. It is proposed to revise advisory standard 56.19–35 and make it mandatory as follows:

56.19–36 *Mandatory.*—Headframes shall be high enough to provide clearance for overtravel and safe stopping of the conveyances. This clearance shall be not less than 15 feet from the bottom of the sheaves or drum and the uppermost part of the highest rope connection of the conveyance when the conveyance is at its uppermost man-landing.

145. It is proposed to revise advisory standard 56.19–37 and make it mandatory as follows:

56.19–37 *Mandatory.*—Fleet angles shall not be greater than 1½ degrees. Fleet angles shall be not less than ½ degree unless a rope guiding device is used.

146. It is proposed to revise advisory standard 56.19–39 and make it mandatory as follows:

56.19–39 *Mandatory.*—Minimum diameters of head sheaves and hoist drums shall conform to the following specifications:

Rope construction:	*Diameter of sheaves and drum times rope diameter*
6×7 Classification	72
6×17 Seale	56
6×19 Seale	51
6×21 Filler wire	45
6×25 Filler wire	41
6×31	38
6×37	33
6×25 type B, flattened strand	45
6×27 type H, flattened strand	45
6×30 type G, flattened strand	45
8×29 Seale	36
8×19 Warrington	31
18×7	51

Drum and sheave diameters shall comply with the rope manufacturer's recommendations for man hoisting applications when ropes of other constructions are used.

147. It is proposed to revise advisory standard 56.19–40 and make it mandatory as follows:

56.19–40 *Mandatory.* MNMSAC.—Head, idler, knuckle, and curve sheaves shall have grooves of proper contour for the specific rope diameter used.

148. It is proposed to revise mandatory standard 56.19–50 as follows:

56.19–50 *Mandatory.* MNMSAC.—Buckets used to hoist persons during vertical shaft sinking operations shall:

(a) Be securely attached to a crosshead when traveling in either direction between the lower and upper crosshead parking locations;

(b) Have overhead protection when the shaft depth exceeds 50 feet;

(c) Have sufficient depth or a suitably designed platform to transport persons safely in a standing position;

(d) Have devices to prevent accidental dumping where the bucket is supported by a bail attached to its lower half.

149. It is proposed to revise mandatory standard 56.19–54 as follows:

56.19–54 *Mandatory.* MNMSAC.—Where rope guides are used in shafts other than in shaft sinking operations, the rope guides shall be of a type of lock coil construction.

150. It is proposed to revise advisory standard 56.19–56 and make it mandatory as follows:

56.19–56 *Mandatory.* MNMSAC.—When automatic hoisting is used, a competent operator of the hoist shall be readily available at or near the hoisting device while any person is underground.

151. It is proposed to revise advisory standard 56.19–57 and make it mandatory as follows:

56.19–57 *Mandatory.* MNMSAC.—No person shall operate a hoist unless within the preceeding 12 months he has had a medical examination by a qualified, licensed physician who shall certify his fitness to perform this duty. Such certification shall be available at the mine.

152. It is proposed to revoke advisory standard 56.19–60. MNMSAC.

153. It is proposed to revise advisory standard 56.19–61 and make it mandatory as follows:

56.19–61 *Mandatory.* MNMSAC.—The safe speed for hoisting men shall be determined for each shaft, and this speed shall not be exceeded. Men shall not be hoisted at a speed faster than 2,500 feet per minute except in an emergency.

154. It is proposed to revise advisory standard 56.19–62 and make it mandatory as follows:

56.19—62 *Mandatory.* MNMSAC.—Maximum normal operating acceleration and deceleration shall not exceed 6 feet per second per second. During emergency braking, the deceleration shall not exceed 16 feet per second per second.

155. It is proposed to revise advisory standard 56.19–66 and make it mandatory as follows:

56.19–66 *Mandatory.* MNMSAC.—In shafts inclined over 45 degrees, management shall determine and post in the conveyance or at each shaft station the maximum number of persons permitted to ride in a hoisting conveyance at any one time. Each person shall be provided a minimum of 1.5 square feet of floor space.

156. It is proposed to revise advisory standard 56.19–67 and make it mandatory as follows:

56.19–67 *Mandatory*—During shift changes, an authorized person shall be in charge of each man trip.

157. It is proposed to revise advisory standard 56.19–68 and make it mandatory as follows:

56.19–68 *Mandatory.* MMMSAC.—Men shall enter, ride, and leave conveyances in an orderly manner.

158. It is proposed to revise advisory standard 56.19–72 and make it mandatory as follows:

56.19–72 *Mandatory.*—When combinations of cages and skips are used in the same compartment, the skips shall be empty while men are being transported.

159. It is proposed to revise advisory standard 56.19–74 and make it mandatory as follows:

56.19–74 *Mandatory.*—Men shall not ride the bail, rim, bonnet, or crosshead of any shaft conveyance.

160. It is proposed to revise advisory standard 56.19–76 and make it mandatory as follows:

56.19–76 *Mandatory.* MNMSAC.—When men are hoisted, bucket speeds shall not exceed 500 feet per minute, and shall not exceed 200 feet per minute when within 100 feet of the intended station.

161. It is proposed to revise advisory standard 56.19–81 and make it mandatory as follows:

56.19–81 *Mandatory.*—Conveyances controlled by a hoistman, when not in use, shall be released and the conveyance shall be raised or lowered at least 10 feet from the floor of the landing.

162. It is proposed to add a new mandatory standard 56.19–83 as follows:

56.19–83 *Mandatory.* MNMSAC.—A manually operated device shall be installed on each electric hoist that will allow the conveyance or counterbalance to be removed from an overtravel position. Such device shall not release the brake, or brakes, holding the overtravelled conveyance or counterbalance until sufficient drive motor torque has been developed to assure movement of the conveyance or counterbalance in the correct direction only.

163. It is proposed to revise advisory standard 56.19–91 and make it mandatory as follows:

56.19–91 *Mandatory.*—Hoistmen shall not accept hoisting instructions by voice communication unless the regular signaling systems are out of order. During such an emergency one authorized person shall be designated to direct movement of the conveyance.

164. It is proposed to revise advisory standard 56.19–93 and make it mandatory as follows:

56.19–93 *Mandatory.*—A standard code of hoisting signals shall be adopted and used at each mine. The movement of a shaft conveyance on a "one bell" signal shall be prohibited.

165. It is proposed to revise advisory standard 56.19–102 and make it mandatory as follows:

56.19–102 *Mandatory.* MNMSAC.—A means shall be provided to guide the movement of a shaft conveyance.

166. It is proposed to revise advisory standard 56.19–106 and make it mandatory as follows:

56.19–106 *Mandatory.* MNMSAC.—Shaft sets shall be kept in good repair and clean of hazardous material.

167. It is proposed to revise advisory standard 56.19–111 and make it mandatory as follows:

56.19–111 *Mandatory.* MNMSAC.—Substantial fixed ladders shall be provided from the collar to as near the shaft bottom as practical during shaft-sinking operations, or an escape hoist powered by an emergency power source shall be provided. When persons are on the shaft bottom, a chain ladder, wire rope ladder, or other extension ladders shall be used from the fixed ladder or lower limit of the escape hoist to the shaft bottom.

168. It is proposed to revise advisory standard 56.19–121 and make it mandatory as follows:

56.19–121 *Mandatory.* MNMSAC.—Complete records shall be kept for three years of inspections, tests, and maintenance of shafts and hoisting equipment.

169. It is proposed to revise advisory standard 56.19–122 and make it mandatory as follows:

56.19–122 *Mandatory.* MNMSAC.—Parts used to repair hoists shall have properties that will insure the proper and safe function of the hoist.

170. It is proposed to revise advisory standard 56.19–123 and make it mandatory as follows:

56.19–123 *Mandatory.* MNMSAC.—Wire ropes shall be lubricated or treated with dressing as recommended or approved by the rope manufacturer.

171. It is proposed to revise advisory standard 56.19–124 and make it mandatory as follows:

56.19–124 *Mandatory.*—Ropes other than those on friction hoists shall be cut off and reconnected to the conveyance at regular intervals at least five times during the anticipated life of the rope, or more frequently if inspection shows it necessary; cutoff intervals shall not exceed 6 months for ropes with life of more than 3 years. At least 6 feet shall be cut from the rope above the highest connection; this portion shall be examined for corrosion, damage, wear, and fatigue.

172. It is proposed to revise advisory standard 56.19–125 and make it mandatory as follows:

56.19–125 *Mandatory.*—Hoist ropes wound on the drum in multiple layers shall be cut off and repositioned on the drum at least three times during the anticipated life of the hoist rope to distribute wear at change of layers and crossover points. The length of the cutoff at the drum end shall be at least ¾ of a wrap and shall not be a whole number multiple of the circumference of the drum.

173. It is proposed to revise advisory standard 56.19–126 and make it mandatory as follows:

56.19–126 *Mandatory.*—Ropes shall be calipered at least every two months to effectively determine the rate of wear and damage. Caliper measurements shall be taken:

(a) Immediately above the socket or clips and above the safety connection.

(b) Where the ropes rest on the sheaves.

(c) Where the ropes leave the drums when the conveyances are at the regular stopping points.

(d) Where a layer of rope begins to overlap another layer on the drum.

(e) At 100-foot intervals; measurements shall be made midway between the last previously calipered points.

174. It is proposed to revoke advisory standard 56.19–127. MNMSAC.

175. It is proposed to revise advisory standard 56.19–130 and make it mandatory as follows:

56.19–130 *Mandatory.*—Empty man conveyances shall be operated up and down shafts at least one round trip before:

(a) Hoisting men after any shaft or related equipment repairs, and

(b) Regular man trips.

176. It is proposed to revise advisory standard 56.19–131 and make it mandatory as follows:

56.19–131 *Mandatory.*—Conveyance connections shall be inspected each day that they are in use.

177. It is proposed to revise advisory standard 56.19–132 and make it mandatory as follows:

56.19–132 *Mandatory.*—Safety catches shall be inspected daily; drop tests shall be made at the time of installation. Every operating day the cage shall be rested on chairs or proper blocking to check the operation or activation of the safety catches by allowing the rope to be slacked suddenly.

178. It is proposed to revise advisory standard 56.19–133 and make it mandatory as follows:

56.19–133 *Mandatory.* MNMSAC.—Operating shafts shall be inspected at least weekly. Idle shafts shall be inspected immediately before use.

179. It is proposed to revise advisory standard 56.19–134 and make it mandatory as follows:

56.19–134 *Mandatory.* MNMSAC.—Sheaves in operating shafts shall be inspected weekly and kept properly lubricated.

180. It is proposed to revise advisory standard 56.19–135 and make it mandatory as follows:

56.19–135 *Mandatory.* MNMSAC.—Rollers used in operating inclined shafts shall be lubricated, properly aligned, and kept in good repair. N. Section 56.20 "Miscellaneous" is proposed to be amended as follows:

181. It is proposed to revise mandatory standard 56.20–2 as follows:

56.20–2 *Mandatory.* MNMSAC.—An adequate supply of potable drinking water shall be provided at all active working areas.

(a) The common drinking cup and containers from which drinking water must be dipped or poured are prohibited.

(b) Where single service cups are supplied, a sanitary container for unused cups and a receptacle for used cups shall be provided.

(c) When water is cooled by ice, the ice shall either be of potable water or shall not come in contact with the water.

(d) Potable water outlets shall be posted.

(e) Potable water systems shall be constructed to prevent backflow or back-siphonage of non-potable water.

182. It is proposed to revise advisory standard 56.20–3 and make it mandatory as follows:

56.20–3 *Mandatory.* MNMSAC.—At all mining operations:

(a) Workplaces, passageways, storerooms, and service rooms shall be kept clean and orderly.

(b) The floor of every workplace shall be maintained in a clean and, so far as possible, a dry condition. Where wet processes are used, drainage shall be maintained, and false floors, platforms, mats, or other dry standing places shall be provided where practicable.

(c) Every floor, working place, and passageway shall be kept free from protruding nails, splinters, holes, or loose boards, as practicable.

183. It is proposed to add a new mandatory standard 56.20–11 as follows:

56.20–11 *Mandatory.* MNMSAC.—Areas where health or safety hazards exist that are not immediately obvious to employees shall be barricaded, or warning signs shall be posted at all approaches. Warning signs shall be readily visible, legible, display the nature of the hazard, and any protective action required.

184. It is proposed to add a new mandatory standard 56.20–12 as follows:

56.20–12 *Mandatory.* MNMSAC.—Toxic materials used in conjunction with or discarded from mining or milling of a product shall be plainly marked or labeled so as to positively identify the nature of the hazard and the protective action required.

185. It is proposed to add a new mandatory standard 56.20–13 as follows:

56.20–13 *Mandatory.* MNMSAC.—Receptacles with covers shall be provided and used for the disposal of waste food and associated materials. They shall be emptied frequently and shall be maintained in a clean and sanitary condition.

186. It is proposed to add a new mandatory standard 56.20–14 as follows:

56.20–14 *Mandatory.* MNMSAC.—No person shall be allowed to consume or store food or beverages in a toilet room nor in any area exposed to a toxic material.

PART 57—HEALTH AND SAFETY STANDARDS—METAL AND NONMETALLIC UNDERGROUND MINES

§ 57.2 [Amended]

O. Section 57.2 "Definitions" is proposed to be amended as follows:

187. It is proposed to add a definition of "Attended equipment" which is applicable to Part 57 only as follows:

Attended equipment. MNMSAC.—"Attended equipment" means any machine or device regularly operated by a miner assigned to operate such machine or device, or any machine or device which is mounted in a direct line of sight of a jobsite which is located within 500 feet of such machine or device, and which jobsite is regularly occupied by a miner assigned to perform job duties at such jobsite during each production shift.

188. It is proposed to add a definition of "Circuit breaker" as follows:

"Circuit breaker" MNMSAC.—"Circuit breaker" means a device designed to open and close a circuit by nonautomatic means and to open the circuit automatically on a predetermined overcurrent setting without injury to itself when properly applied within its rating.

189. It is proposed to add a definition of "Conductor" as follows:

Conductor. MNMSAC.—"Conductor" means a material, usually in the form of a wire, cable, or bus bar, capable of carrying an electric current.

190. It is proposed to add a definition which is applicable to Part 57 only as follows:

Fire door. MNMSAC.—"Fire door" means an openable closure for a passageway, shaft or other mine opening to serve as barrier to fire, the effects of fire, and air leakage. A fire door shall have a fire resistance rating of 1½ hours or greater and, on exposure to fire on one side for 30 minutes, the temperature on the unexposed side shall not exceed 250° F, as determined by a nationally

recognized testing agency in accordance with "Standard Method of Fire Tests of Door Assemblies", National Fire Protection Association (NFPA) Code No. 252, 1972, or equivalent. The framework assembly of a fire door and the surrounding bulkhead, if any, shall be at least equivalent to the fire door in fire and air-leakage resistance, and in physical strength. NFPA Code No. 252 is hereby incorporated by reference and made a part hereof. This publication may be examined in any Metal and Nonmetal Mine Health and Safety Subdistrict Office, Mining Enforcement and Safety Administration, or may be obtained from the National Fire Protection Association, 470 Atlantic Avenue, Boston, MA 02210.

191. It is proposed to add a definition of "Insulated" as folows:

Insulated. MNMSAC. — "Insulated" means separated from other conducting surfaces by a dielectric substance permanently offering a high resistance to the passage of current and to disruptive discharge through the substance. When any substance is said to be insulated, it is understood to be insulated in suitable manner for the conditions to which it is subjected. Otherwise, it is, within the purpose of this definition, uninsulated. Insulating covering is one means for making the conductor insulated.

192. It is proposed to add a definition of "Insulation" as follows:

Insulation. MNMSAC.—"Insulation" means a dielectric substance offering a high resistance to the passage of current and to disruptive discharge through the substance.

193. It is proposed to add a definition of "Overcurrent" as follows:

Overcurrent. MNMSAC.—"Overcurrent" means an abnormal current that is greater than the full load value of the circuit.

194. It is proposed to add a definition of "Overload" as follows:

Overload. MNMSAC.—"Overload" means that current which will cause an excessive or dangerous temperature in the conductor or conductor insulation.

195. It is proposed to add a definition of "Short circuit" as follows:

Short circuit. MNMSAC.—"Short circuit" means an abnormal connection of relatively low resistance, whether made accidentally or intentionally, between two points of different potential in a circuit.

§ 57.3 [Amended]

P. Section 57.3 "Ground control" is proposed to be amended as follows:

196. It is proposed to revoke advisory standard 57.3–25 and revise advisory standard 57.3–26 which is applicable to underground only and make it mandatory as follows:

57.3–26 *Mandatory.* MNMSAC.—Timbers used for support of ground in active workings shall be set, blocked and/or wedged so that a tight fit is achieved. Damaged, loosened, or dislodged timbers which create a hazardous condition shall be promptly repaired or replaced.

197. It is proposed to revise advisory standard 57.3–33 which is applicable to underground only and make it mandatory as follows:

57.3–33 *Mandatory. MNMSAC.*—Calibrated torque meters or torque wrenches shall be available at mines where rock bolts are used for ground control. Periodic tests shall be made to determine the torque meter or torque wrench accuracy.

198. It is proposed to add a new mandatory standard 57.3–34 which is applicable to underground only as follows:

57.3–34 *Mandatory.*—Each operator shall develop and set out in written form a ground control plan suitable to the current conditions and mining systems or proposed mining systems of the mine. Within 45 calendar days after promulgation of this standard, a copy of the plan and any revisions thereof shall be submitted for approval to the Secretary or his authorized representative. Upon approval the plan shall be adopted by the operator. Each approved and adopted plan shall be updated as necessary and each updated plan shall be submitted for approval to the Secretary or his authorized representative. Upon approval the updated plan shall be adopted by the operator. Each approved plan or updated plan shall be reviewed jointly by the operator and the Secretary or his authorized representative at least every twelve months from the last date of approval.

The ground control plan shall include where applicable:

(a) A general description of the structural geology of the mine including location, orientation, and geologic description of major structural defects.

(b) A mine map showing a plan view of each level in the mine and identifying all workings and their elevations.

(c) A description of the mining method(s) and/or procedure(s) used. Included would be:

(1) Dimensions and shape(s) of planned and designed openings;

(2) Chronology of ongoing development and mining, including the time delay between creation of an unsupported opening and installation of support; and

(3) Method of rock breakage including depth of round, spacing and angling of drill holes, explosives used, powder factor, and type of detonator and primer.

(d) The methods and procedures for installing permanent or temporary support. Information shall include:

(1) The support type, e.g., rock bolting, timbering, backfill;

(2) Normally planned spacing of support units;

(3) Step-by-step description of installation procedures;

(4) Parameters of preparation and fit which are to be followed to insure maximum support; and

(5) Equipment used in the installation and testing of rock bolts.

(e) A listing of and specifications for materials used for artificial support. Dimensions, quality, and rated strengths of such materials shall be given. Materials and mixes thereof utilized in the composition of sealants, sprayed concretes, grouts, or backfill should be described relative to quality, shelf life, and in-place strengths.

(f) Scaling methods, procedures, and equipment. Required information includes:

(1) The technique and practice to be followed by workers during scaling done as a part of the normal mining cycle;

(2) Methods and procedures to conduct scaling operations as a part of repair and salvage of damaged walls and backs of mine openings; and

(3) A listing of types of equipment used specifically for scaling.

(g) Policy and practice to be followed in the supervision of scaling operations and inspection for loose ground and unsafe working conditions in back, face, and ribs of working places.

(h) Method(s) for monitoring ground movement including types of instruments to be used together with their sensitivities and ranges; the frequency of readings; and the relationship between the extent of movement and fall-of-ground hazards.

(i) Proposed training. Plans shall be specified for training all persons engaged in scaling and in ground support installation and operation of related mining equipment.

(j) Method of company official reporting and recording of failures and falls of ground. Information shall include the type, magnitude, and cause, when possible, of a fall of ground or support failure, and the remedial action to be taken.

199. It is proposed to add a new mandatory standard 57.3–35 which is applicable to underground only as follows:

57.3–35 *Mandatory.* MNMSAC.—Operators of mines that have experienced rock bursts within the mine shall develop a comprehensive rock burst detection plan applicable to current conditions in that mine within 90 days after promulgation of this standard or, thereafter, within 90 days after a rock burst has been experienced. This plan shall be updated from time to time as conditions and available technology warrant. This comprehensive rock burst detection plan shall be available to the Secretary or his designated representative and to mine employees.

200. It is proposed to reserve numbers 57.3–36 through 57.3–49, and to add a new center subheading in section 57.3 as follows:

(a) Numbers 57.3–36 through 57.3–49 under the present center subheading are reserved.

(b) A new center subheading entitled "General—Surface and Underground" immediately below the reserved numbers 57.3–36 through 57.3–49.

As proposed the reserved standard numbers and center subheadings will read as follows:

* * * * *

UNDERGROUND ONLY

* * * * *

57.3–36 through 57.3–49 [Reserved].

GENERAL—SURFACE AND UNDERGROUND

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201. It is proposed to revise and renumber advisory standard 57.3–11 which is applicable to surface and underground and make it mandatory as follows:

57.3–50 *Mandatory.* MNMSAC.—Material, other than hanging material, to be broken by secondary drilling and blasting, or by any other method shall be positioned or blocked to prevent hazardous movement before persons commence breaking operations. Persons who perform those operations shall work from a location where, if movement of material occurs, those persons will not be endangered.

202. It is proposed to revoke advisory standards 57.3–23 and 57.3–24 and to add a new mandatory standard 57.3–51 which is applicable to surface and underground as follows:

57.3–51 *Mandatory.* MNMSAC.—A scaling bar of sufficient length to place the user out of danger of falling material shall be provided at each working place, where manual scaling may be required. The scaling bar shall be blunt on one end. Picks or other short tools shall not be used for scaling when their use places the user in danger of falling material.

203. It is proposed to revoke advisory standard 57.3–32 and add a new mandatory standard 57.3–52 which is applicable to surface and underground as follows:

57.3–52 *Mandatory.*—When rock bolting is a part of the mining cycle, rock bolts shall be installed as soon as possible after an area is exposed. Blasting shall be scheduled so that a minimal time will elapse between exposure of ground by blasting and installation of bolts.

204. It is proposed to add a new mandatory standard 57.3–3 which is applicable to surface and underground as follows:

57.3–53 *Mandatory.* MNMSAC.—Rock-bolt installation requiring torquing shall be torqued to a value within the range determined from information of tests in the strata in which the rock bolt assembly is used. In no case shall installation torques cause bolt tensions that would exceed the yield point or anchorage capacity of the rock bolt assembly being used.

205. It is proposed to add a new mandatory standard 57.3–54 which is applicable to surface and underground as follows:

57.3–54 *Mandatory.* MNMSAC.—When rock bolts are used as a means of ground support, anchorage pull-test procedures shall be established and tests shall be conducted to determine anchorage capacity of rock-bolt installations. Test results shall be set forth in writing and made available to the Secretary or his duly authorized representative.

206. It is proposed to add a new mandatory standard 57.3–55 which is applicable to surface and underground as follows:

57.3–55 *Mandatory.* MNMSAC.—Rock-bolt stalling point-anchor rock bolts:

(a) A torque test shall be conducted on at least every fourth installed bolt.

(b) Torque testing shall be conducted immediately after bolt installation.

(c) If the recommended torque has not been achieved, the equipment used to install the bolt shall be adjusted and the next bolt installed shall then be tested.

(d) If the recommended torque has not been achieved on the majority of bolts installed in a working place through equipment adjustment, supplemental support such as longer roof bolts with adequate anchorage, steel or wood sets, or cribs shall be installed.

207. It is proposed to add a new mandatory standard 57.3–56 which is applicable to surface and underground as follows:

57.3–56 *Mandatory.* MNMSAC.—Rock bolt hole drill bits shall be easily identifiable by sight or feel and diameters shall be within a tolerance of ±0.030-inches of the manufacturer's recommended hole diameter for the anchor used.

208. It is proposed to add a new mandatory standard 57.3–57 which is applicable to surface and underground as follows:

57.3–57 *Mandatory. MNMSAC.*—Washers if used in rock-bolt assemblies to reduce friction between the bolt head and the bearing plate shall:

(a) Have hardness in the range of 35–45 HRC (Hardness Rockwell C Scale).

(b) Conform to the shape of the bolt head and bearing plate.

(c) Have sufficient strength to withstand loads up to the yield point of the rock bolt.

209. It is proposed to add a new mandatory standard 57.3–58 which is applicable to surface and underground as follows:

57.3–58 *Mandatory.*—Alignment compensating devices shall be placed between the bolt head and the bearing plate where the angle between the bolt axis and the normal to (perpendicular) the bearing plate surface is more than 5 degrees.

§ 57.4 [Amended]

Q. Section 57.4 "Fire prevention" and control is proposed to be amended as follows:

210. It is proposed to revise advisory standard 57.4–66 which is applicable to underground only and make it mandatory as follows:

57.4–66 *Manadatory.* — Automatically-actuated fire-suppression systems shall be installed at all conveyor belt drives, (including the drive motor, controls, reducing gears, and take-up units) and extend 50 feet along the conveyor belt from the drive drum for a flame-resistant belt which shall be approved under Part 18 of Title 30, or 150 feet for a nonflame-resistant belt.

211. It is proposed to add a new mandatory standard 57.4–87 which is applicable to underground only as follows:

57.4–87 *Mandatory.*—All attended internal-combustion engine-driven equipment shall be equipped with an installed fire-suppression system.

212. It is proposed to add a new mandatory standard 57.4–88 which is applicable to underground only as follows:

57.4–88 *Mandatory.*—All attended electrically powered equipment which uses nonfire-resistant hydraulic fluid shall be equipped with an installed fire-suppression system.

213. It is proposed to add a new mandatory standard 57.4–89 which is applicable to underground only as follows:

57.4–89 *Mandatory.* MNMSAC.—Unattended diesel-operated equipment shall be provided with an automatically-actuated fire-suppression system.

214. It is proposed to add a new mandatory standard 57.4–90 which is applicable to underground only as follows:

57.4–90 *Mandatory.* MNMSAC.—Unattended electric motors rated at 60 hp or more, or unattended electric motors of less than 60 hp associated with equivalents of one gallon or more of combustible liquid, 50 pounds of nonfire-retardant treated wood, or 10 pounds of plastic material shall be provided with an automatically-actuated fire-suppression system.

215. It is proposed to add a new mandatory standard 57.4–91 which is applicable to underground only as follows:

57.4–91 *Mandatory.* MNMSAC.—Automatically-actuated fire-suppression systems on unattended equipment shall meet the following criteria:

(a) Fire-suppression system; approved components; installation requirements:

(1) The components of each fire-suppression system shall be listed as approved by Factory Mutual Engineering Corporation or Underwriters Laboratories, Inc., or approved by the Secretary.

(2) Where used, pressure vessels shall be designed and constructed in accordance with one of the following: Nationally recognized testing laboratory standard, e.g., Underwriters Laboratories, Inc.; Federal agency standard, e.g., Department of Transportation; or American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section VIII (1971).

(3) The cover of hose installed in fire-suppression systems, after the effective date of this standard, shall meet the flame-resistant requirements of Section 18.65, Part 18 of Title 30.

(4) Fire-suppression systems shall, where appropriate, be installed in accordance with the manufacturer's specifications.

(b) Sensors' requirements, and installation:

(1) Where fire-suppression devices are installed, one or more point-type sensors or equivalent shall be installed for each 50 square feet or fraction thereof of top surface area of such equipment. Each such sensor shall be designed to activate the fire-suppression system and to disconnect the electrical power source or to stop the internal combustion engine power to the equipment protected; and, except where sprinklers are used, there shall be in addition, a manual actuator installed to operate the fire-suppression system. Where sprinklers are used, provision shall also be made for manual application of water to the protected equipment.

(2) Sensors, where practicable, shall be installed in accordance with the recommendations set forth in National Fire Code No. 72A, "Local Protective Signaling Systems" (NFPA No. 72A–1974).

(3) If electrically operated sensors are used in fire-suppression systems, they shall operate independently of power to the main motor (or equivalent) or contain a standby power source so that the fire-suppression system will remain operative for at least four hours if the circuit breakers (or other protective devices) actuate.

(4) Sensor systems shall include a device or method for determining their operative condition.

(c) Capacity of fire-suppression devices; location and direction of nozzles;

(1) Each fire-suppression device shall be:

A. Adequate in size and capacity to extinguish potential fires in or on the equipment protected; and

B. Suitable for the atmospheric conditions surrounding the equipment protected (e.g., air velocity, type, and proximate combustible material); and

C. Rugged enough to withstand rough usage and vibration.

(2) The extinguishant-discharge nozzle of each fire-suppression system where practicable, shall be located so as to take advantage of mine ventilation air currents. The fire-suppression system may be of the internal injection, inundating, or combination type. Where fire control is achieved by internal injection, and inundation, hazardous locations shall be enclosed to minimize runoff and over-shoot of the extinguishing agent.

(d) Fire-suppression systems; water supply systems requirements:

(1) Fire-suppression systems using water or liquid chemical to protect unattended equipment shall:

A. Be limited to a pressure consistent with the pipe fittings, valves, and nozzles used in the system.

B. Be located so as to be protected against damage during operation of the equipment protected.

C. Employ liquid which is free from excessive sediment and is noncorrosive to the system.

D. Include strainers equipped with flushout connections or equivalent protective devices and a rising stem or other visual-indicator-type shut-off valve.

(2) Water for fire-suppression systems installed on underground equipment may be supplied from mounted water tanks or by connection to water mains. Such water supplies shall be continuously connected to the fire-suppression system whenever the equipment is connected to a power source.

(e) Water spray systems: capacity, water supply minimum requirements:

(1) Where water spray systems are used the rate of flow shall be at least 0.25 gallon per minute per square foot over the top surface area of the equipment and the supply of water shall be adequate to provide the required flow of water for 10 minutes.

(2) Liquid chemical, if used, shall be nontoxic, and when applied to fire shall not produce excessive toxic compounds. The quantity of liquid chemicals required shall be proportionately less than water as based on equivalency ratings made by a nationally-recognized testing agency acceptable to the Secretary.

(f) Dry chemical systems: capacity and minimum requirements:

Dry chemical fire extinguishing systems used on underground equipment shall be of the multipurpose powder type and shall include:

(1) The system, including all hose and nozzles, shall be protected against the entrance of moisture, dust, or dirt;

(2) The system shall be guarded against damage during operation of the equipment protected;

(3) Hose and pipe shall be as short as possible; the distance between the chemical container and furthest nozzle shall not exceed 50 feet;

(4) Hose, piping, and fittings between the actuator and the chemical container shall have a bursting pressure of 500 pounds per square inch (gage) or higher; the hose, piping, and fittings between the chemical container and the nozzles shall have a bursting pressure of 300 pounds per square inch (gage) or higher; and

(5) The system shall discharge in 1 minute or less, for quantities less than 50 pounds (nominal) [1] and in less than 2 minutes for quantities more than 50 pounds.

(6) On unattended underground equipment, the number of pounds of dry chemical employed by the system shall be not less than 1 pound per square foot of top surface area of the equipment; however, the minimum amount in any system shall be 20 pounds (nominal). The discharge shall be directed into and on potentially hazardous locations of the equipment.

(g) High expansion foam systems; minimum capacity requirements:

On unattended underground equipment, the amount of water delivered as high expansion foam for a period of approximately 20 minutes shall be not less than 0.06 gallon per minute per square foot of surface area of the equipment protected; provided, however, the minimum total rate for any system shall be not less than 3 gallons per minute.

(h) Inerting of mine atmosphere by total flooding prohibited:

No fire suppression device designed to control fire by total flooding with an inert gas shall be installed to protect unattended underground equipment except in enclosed dead-end entries or enclosed rooms.

(i) Fire-suppression systems; hazards; training of miners:

Each operator shall instruct all miners normally assigned to the active workings of the mine with respect to any hazards inherent in the operation of all fire-suppression systems used in those workings and, where appropriate, the safeguards available at each such installation.

(j) Inspection of fire-suppression systems:

(1) All fire-suppression systems shall be visually inspected at least once each week by a person competent to make such inspections.

(2) Each fire-suppression system shall be tested and maintained in accordance with the requirements specified in the appropriate National Fire Code listed for the type and kind of device used as follows:

National Fire Code No. 11A "High Expansion Foam Systems" (NFPA No. 11A–1970).

National Fire Code No. 13 "Installation of Sprinkler Systems" (NFPA No. 13–1974).

National Fire Code No. 15 "Water Spray Fixed Systems" (NFPA No. 15–1973).

National Fire Code No. 17 "Dry Chemical Systems" (NFPA No. 17–1973).

National Fire Code No. 72A "Local Protective Signaling Systems" (NFPA No. 72A–1974).

National Fire Code No. 198 "Care of Fire Hose" (NFPA No. 198–1972).

(3) A record of the inspections required by this section shall be maintained by the operator. The record of the weekly inspections shall be maintained at an appropriate location near each fire-suppression system.

(k) Incorporation by reference; availability of publications

Publications to which references are made in this standard are hereby incorporated by reference and made a part hereof. The incorporated publications are available for examination at each Metal and Nonmetal Mine Health and Safety Subdistrict Office of the Mining Enforcement and Safety Administration. National Fire Codes may be purchased from the National Fire Protection Association, 470 Atlantic Avenue, Boston, MA 02210. The Boiler and Pressure Vessel Code may be purchased from the American Society of Mechanical Engineers, 345 East 47th St., New York, NY 10017.

216. It is proposed to add a new mandatory standard 57.4–92 which is applicable to underground only as follows:

57.4–92 *Mandatory.* MNMSAC.—Fire-suppression systems on attended equipment shall meet the following criteria.

(a) Fire-suppression system, approved components, installation requirements are as follows:

(1) The components of each fire-suppression system, where appropriate, shall be listed as approved by Factory Mutual Engineering Corporation or Underwriters Laboratories or approved by the Secretary.

(2) Where used, pressure vessels shall be designed and constructed in accordance with one of the following: nationally recognized testing laboratory standard, e.g., Underwriters Laboratories, Inc.; Federal agency standard, e.g., Department of Transportation; or American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section VIII (1971).

(3) The cover of hose installed in fire-suppression systems after the effective date of this standard shall meet the flame-resistant requirements of Section 18–65, Part 18 of Title 30.

(4) Two or more manual actuators, where practicable, shall be installed, as provided in subdivisions (5) and (6) of this subparagraph, to activate a fire-suppression system on attended equipment purchased on or after the effective date of this standard. At least one manual actuator shall be used on equipment purchased prior to the effective date of this standard.

(5) Manual actuators shall be located at different locations on the equipment, and at least one manual actuator shall be located within easy reach of the operator's normal operating position.

(6) Manual actuators to activate fire-suppression devices on attended equipment not regularly operated by a miner shall be installed at different locations, and at least one manual actuator shall be installed so as to be easily reached by the miner at the job site or by persons approaching the equipment.

(7) Where sprinklers are used, provisions shall be made for manual application of water to protected equipment in lieu of a manual actuator.

(b) Sensors: requirements and installation are as follows:

(1) Sensors, where practicable, shall be installed in accordance with the recommendations set forth in National Fire Code No. 72A "Local Protective Signaling Systems" (NFPA No. 72A–1974). On attended equipment powered through a trailing cable, the fire-suppression system shall operate independently of the electrical power provided by the cable.

(2) Point-type sensors (such as thermocouple, bimetallic strip, or rate of temperature rise) located in ventilated passageways shall be installed downwind from the equipment to be used.

(3) Sensor systems shall include a device or method for determining their operative condition.

(c) Capacity of fire-suppression devices; location and direction of nozzles are as follows:

(1) Each fire-suppression device shall be:

A. Adequate in size and capacity to extinguish potential fires in or on the equipment protected; and

B. Suitable for the atmospheric conditions surrounding the equipment protected (such as air velocity, type, and proximity of adjacent combustible material); and

C. Rugged enough to withstand rough usage and vibration when installed on mining equipment.

(2) The extinguishant-discharge nozzle of each fire-suppression system, where practicable, shall be located so as to take advantage of mine ventilation air currents. The fire-suppression system may be of the internal injection, inundating, or combination type. Where fire control is achieved by internal injection, or combination of internal injection and inundation, hazardous locations shall be enclosed to minimize runoff and over-shoot of the extinguishing agent; the extinguishing agent shall be directed onto:

A. Cable reel compartments and electrical cables on the equipment which are subject to flexing or to external damage; and

B. All hydraulic components on the equipment which are exposed directly to or located in the immediate vicinity of electrical cables which are subject to flexing or to damage.

(d) Water spray systems; capacity; water supply; minimum requirements are as follows:

[1] The word "nominal" is used in this standard to express the approximate weight in pounds of all-purpose dry chemical (ammonium dihydrogen phosphate) because the density of the all-purpose dry chemical is less than the density of sodium bicarbonate; a system originally designed for 50 pounds of sodium bicarbonate will not hold quite 50 pounds of all-purpose dry chemical.

(1) Where water spray systems are used for inundating attended underground equipment the rate of flow shall be at least 0.18 gallon per minute per square foot over the top surface area of the equipment (excluding conveyors, cutters, and gathering heads), and the supply of water shall be adequate to provide the required flow of water for 10 minutes.

(2) Where water is used for internal injection on attended equipment the total quantity of water shall be at least 4.5 gallons times the number of hazardous locations. The rate of flow shall be not less than 7 gallons per minute.

(3) Where water is used in a combination internal injection and inundation system on attended equipment, the rate of flow shall be at least 0.12 gallon per minute per square foot over the top surface area of the equipment (excluding conveyors, cutters, and gathering heads), and the supply of water shall be adequate to provide the required flow of water for 10 minutes.

(4) On equipment provided with a cable reel and an internal injection or combination-type system, the amount of water discharged into the cable reel compartments shall be approximately 25 percent of the amount required to be discharged by the system, however, such quality need not exceed 10 gallons.

(5) Liquid chemical may be used in self-contained fire-suppression systems. Such liquid chemicals shall be nontoxic and when applied to a fire shall not produce excessive toxic compounds. The quantity of liquid chemicals required shall be proportionately less than water as based on equivalency ratings made by a nationally recognized agency approved by the Secretary.

(e) Fire-suppression systems; extinguishant supply systems are as follows:

(1) Fire-suppression systems using water or liquid chemical to protect attended equipment shall:

A. Be limited to a pressure consistent with the pipe, fittings, valves, and nozzles used in the system.

B. Be located so as to be protected against damage during operation of the equipment protected.

C. Employ liquid which is free from excessive sediment and noncorrosive to the system.

D. Include strainers equipped with flush-out connections or equivalent protective devices and a rising stem or other visual indicator-type shutoff valve.

(2) Water supplies for fire-suppression system installed on underground equipment may be maintained in mounted water tanks or by connection to water mains. Such water supplies shall be continuously connected to the fire-suppression system whenever the equipment is connected to a power source, except for a reasonable time for changing hose connections to hydrants while the machine is stopped in a ventilated passageway.

(f) Dry chemical systems; capacity; minimum requirements are as follows:

(1) Dry chemical fire extinguishing systems used on underground equipment shall be of the multipurpose powder-type and shall include the following:

A. The system including all hose and nozzles shall be protected against the entrance of moisture, dust, or dirt;

B. The system shall be guarded against damage during operation of the equipment protected;

C. Hose and pipe shall be as short as possible; the distance between the chemical container and furthest nozzle shall not exceed 50 feet;

D. Hose, piping, and fittings between the actuator and the chemical container shall have a bursting pressure of 500 pounds per square inch (gage) or higher; the hose, piping, and fitting between the chemical container and the nozzles shall have a bursting pressure of 300 pounds per square inch (gage) or higher; and

E. The system shall discharge in 1 minute or less, for quantities less than 50 pounds (nominal)[3] and in less than 2 minutes for quantities more than 50 pounds.

(2) On underground equipment, the number of pounds (nominal) employed by the system shall equal 5 times the total number of hazardous locations.

(3) The amount of dry chemical discharged into the cable reel compartments of attended underground equipment shall be approximately 25 percent of the total amount required to be discharged by the system; however, the quantity discharged into a cable reel compartment need not exceed 10 pounds.

(g) High expansion foam systems; minimum capacity requirements are as follows:

(1) On underground equipment, foam may be delivered by internal injection, inundation, or combination-type systems. Each system shall deliver water as foam for a minimum of 10 minutes. For internal injection, the rate of water application as high expansion foam shall be not less than 0.5 gallon per minute per hazardous location; however, the minimum total rate shall be not less than 2 gallons per minute. For inundation, the rate of water application as high expansion foam shall be not less than 0.05 gallon per minute per square foot of top surface area of the equipment protected; however, the minimum total rate shall be not less than 5 gallons of water per minute.

(2) In combined internal injection and inundation systems the rate of water applied as foam shall not be less than 0.035 gallon per minute per square foot of top surface area of the equipment protected; however, the minimum total rate shall not be less than 3.5 gallons of water per minute.

(3) Where internal injection is employed, the amount of water discharged as high expansion foam into the cable reel compartments of underground equipment regularly operated by a miner shall be approximately 25 percent of the total amount required to be discharged by the system; however, the quantity of water discharged as foam into the cable reel compartment need not exceed 1.5 gallons.

(h) Extinguishing agents; requirements on mining equipment employed in low vertical clearance are as follows: On mining equipment no more than 32 inches high, the quantity of extinguishing agent required may be reduced by one-fourth if space limitations on the equipment require such reduction.

(i) Fire-suppression systems; hazards; training of miners requirements are as follows: Each operator shall instruct all miners normally assigned to the active workings of the mine with respect to any hazards inherent in the operation of all fire-suppression systems and where appropriate, the safeguards available at each such installation.

(j) Inspection of fire-suppression systems requirements are as follows: (1) All fire-suppression systems shall be visually inspected at least once each week by a person qualified to make such inspections.

[3] The word "nominal" is used in this standard to express the approximate weight in pounds of all-purpose dry chemical (ammonium dihydrogen phosphate) because the density of the all-purpose dry chemical is less than the density of sodium bicarbonate; a system originally designed for 50 pounds of sodium bicarbonate will not hold quite 50 pounds of all-purpose dry chemical.

(2) Each fire-suppression system shall be tested and maintained in accordance with the requirements specified in the appropriate National Fire Code listed as follows for the type and kind of device used:

National Fire Code No. 11A "High Expansion Foam Systems" (NFPA No. 11A–1970).

National Fire Code No. 13 "Installation of Sprinkler Systems" (NFPA No. 13A–1974).

National Fire Code No. 15 "Water Spray Fixed Systems" (NFPA No. 15–1973).

National Fire Code No. 17 "Dry Chemical Systems" (NFPA No. 17–1973).

National Fire Code No. 72A "Local Protective Signaling Systems" (NFPA No. 72A–1974).

National Fire Code No. 198 "Care of Fire Hose" (NFPA No. 198–1972).

(3) A record of the inspections required by this Section shall be maintained by the operator. The record of the weekly inspections shall be maintained at an appropriate location near each fire-suppression system.

(k) Incorporation by reference; availability of publications:

Publications to which references are made in this standard are hereby incorporated by reference and made a part herof. The incorporated publications are available for examination at each Metal and Nonmetal Mine Health and Safety Subdistrict Office of the Mining Enforcement and Safety Administration. National Fire Codes may be obtained from the National Fire Protection Association, 470 Atlantic Avenue, Boston, MA 02210. The Boiler and Pressure Vessel Code may be purchased from the American Society of Mechanical Engineers, 345 East 47th St., New York, NY 10017.

R. Section 57.5 "Air quality, ventilation, radiation, and physical agents" is proposed to be amended as follows:

217. It is proposed to add a new mandatory standard 57.5–18E which is applicable to surface and underground as follows:

57.5–18E *Mandatory.*—Mechanical ventilation equipment shall be installed and used whenever ventilation and air quality is not maintained in accordance with the applicable standards in this section 57.5.

218. It is proposed to add a new mandatory standard 57.5–18F which is applicable to surface and underground as follows:

57.5–18F *Mandatory.* MNMSAC.—All underground main fans shall have remote controls at safe locations, preferably on the surface, and protected against possible damage.

219. It is proposed to revoke advisory standard 57.5–21. MNMSAC.

220. It is proposed to revoke advisory standard 57.5–30. MNMSAC.

221. It is proposed to revoke and replace reserved number 57.5–35 with the series of numbers 57.5–35A through 57.5–35Z under the present center heading and center subheading, and reserve numbers 57.5–35C through 57.5–35Z.

222. It is proposed to add a new mandatory standard 57.5–35A which is applicable to underground only as follows:

57.5–35A *Mandatory.* MNMSAC. — Seals shall be provided with a means for checking the quality of air behind the seal and a means to prevent a water head from developing unless the seal is designed to impound water.

223. It is proposed to add a new mandatory standard 57.5–35B which is applicable to underground only as follows:

57.5–35B *Mandatory.*—Booster fans shall be:

(a) Installed in noncombustible bulkheads or with noncombustible air ducts in a manner to prevent recirculation;

(b) Installed with noncombustible housings;

(c) Inspected at least weekly to insure proper operation of fan, fan signal devices and fan controls;

(d) Provided with an automatic signal device to give warning or alarm should the fan system malfunction. The signal device shall be so located that it can be seen or heard by a responsible person at all times when persons are underground;

(e) Equipped with two sets of controls capable of starting, stopping, and reversing the fans. One set of controls shall be located at the fans. A second set of controls shall be at another location remote from the fans.

224. It is proposed to add a new mandatory standard 57.5–43 which is applicable to underground only as follows:

57.5–43 *Mandatory.*—At every underground mine where radon daughter concentrations in excess of 0.3 WL are found in any active workings:

(a) Radon daughter sampling equipment shall be available for use on each given shift when men are working underground.

(b) A competent person shall be available to make radon daughter measurements required by the standard in this section on each shift.

(c) Each alpha detector in the sampling equipment shall be calibrated prior to its initial use, and thereafter, at intervals not to exceed 6 months. The most recent calibration record for each instrument shall be kept with the instrument and be available for inspection by the Secretary or his duly authorized representative.

(d) Except as required by this section, procedures for sampling and calibration of sampling equipment shall be in accordance with American National Standards Institute (ANSI) N–13.8–1973, section 14, which is hereby incorporated by reference and made a part hereof. This publication may be examined in any Metal and Nonmetal Mine Health and Safety Subdistrict Office, Mining Enforcement and Safety Administration, or may be obtained from the American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018.

225. It is proposed to add a new mandatory standard 57.5–44 which is applicable to underground only as follows:

57.5–44 *Mandatory.* MNMSAC.—The wearing of respirators approved for protection against radon daughters shall be required in environments exceeding 1.0 WL and respirator use shall be in compliance with Standard 57.5–5.

226. It is proposed to add a new mandatory standard 57.5–45 which is applicable to underground only as follows:

57.5–45 *Mandatory.* MNMSAC.—Inactive workings, in which radon daughter concentrations are above 1.0 WL, shall be posted against unauthorized entry and designated by signs indicating them as areas in which approved respirators shall be worn.

227. It is proposed to add a new standard 57.5–46 which is applicable to underground only as follows:

57.5–46 *Mandatory.* MNMSAC.—Where radon daughter concentrations exceed 10 WL, respirator protection against radon gas shall be provided in addition to protection against radon daughters. Protection against radon gas shall be provided by supplied air devices or by face masks containing adsorbent material capable of removing both radon and its daughters.

228. It is proposed to add a new mandatory standard 57.5–47 which is applicable to underground only as follows:

57.5–47 *Mandatory.* MNMSAC.—Gamma radiation surveys shall be conducted annually in all underground mines where radioactive ores are mined.

(a) Surveys shall be in accordance with ANSI N 13.8–1973, section 14, for gamma radiation measurement methods as set forth in 57.5–43(d). This publication may be examined in any Metal and Nonmetal Mine Health and Safety Subdistrict Office, Mining Enforcement and Safety Administration, or may be obtained from the American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018.

(b) Where average gamma radiation measurements are in excess of 2.0 milliroentgen per hour in the working place, gamma radiation dosimeters shall be provided for all persons affected, and records of cumulative individual gamma radiation exposure shall be kept.

(c) Annual individual gamma radiation exposure shall not exceed 5 Rems.

S. Section 57.9 "Loading, hauling, dumping" is proposed to be amended as follows:

229. It is proposed to revoke advisory standard 57.9–18. MNMSAC.

230. It is proposed to revise advisory standard 57.9–35 which is applicable to surface and underground and make it mandatory as follows:

57.9–35 *Mandatory.* MNMSAC. — Movements of two or more pieces of rail equipment operating independently on the same track shall be suitably controlled for safe operation.

231. It is proposed to revise advisory standard 57.9–46 which is applicable to surface and underground and make it mandatory as follows:

57.9–46 *Mandatory.* MNMSAC.—Backpoling of trolleys shall be avoided wherever possible; but when necessary, backpoling shall be done only at slow speeds.

232. It is proposed to revise advisory standard 57.9–56 which is applicable to surface and underground and make it mandatory as follows:

57.9–56 *Mandatory.* MNMSAC.—Where necessary, bumper blocks or the equivalent shall be provided at all track dead-ends.

233. It is proposed to revise advisory standard 57.9–57 which is applicable to surface and underground and make it mandatory as follows:

57.9–57 *Mandatory.* MNMSAC.—Grizzlies, grates, and other stationary sizing devices shall be anchored securely.

234. It is proposed to renumber and revise advisory standard 57.9–108 and make it mandatory and applicable to surface and underground as follows:

57.9–72 *Mandatory.* MNMSAC. — Persons attempting to free hangups shall be experienced persons who understand the hazards involved.

235. It is proposed to add a new mandatory standard 57.9–73 which is applicable to surface and underground as follows.

57.9–73 *Mandatory.* MNMSAC.—Defective equipment, removed from service as unsafe to operate, shall be tagged to prohibit further use until repairs are completed.

236. It is proposed to revise advisory standard 57.9–112 which is applicable to underground only and make it mandatory as follows:

57.9–112 *Mandatory.* MNMSAC.—On rail haulage, trip lights shall be used on the rear of pulled trips and on the front of pushed trips.

§ 57.11 [Amended]

T. Section 57.11 "Travelways and escapeways" is proposed to be amended as follows:

237. It is proposed to revise mandatory standard 57.11–50 which is applicable to underground only as follows:

57.11–50 *Mandatory.* MNMSAC. — Every mine shall have two or more separate, properly maintained escapeways to the surface from the lowest levels which are so positioned that damage to one shall not lessen the effectiveness of the others. A method of refuge shall be provided while a second opening to the surface is being developed. A second escapeway is recommended, but not required, during the exploration or development of an ore body.

In addition to separate escapeways, a method of refuge shall be provided for every employee who cannot reach the surface from his working place through at least two separate escapeways with in a time limit of one hour when using the normal exit method. These refuges must be positioned so that the employee can reach one of them within 30 minutes from the time he leaves his workplace.

238. It is proposed to revise mandatory standard 57.11–55 which is applicable to underground only as follows:

57.11–55 *Mandatory.* MNMSAC.—Designated escapeways inclined more than 30 degrees from the horizontal, and more than 300 feet in vertical extent, shall be provided with emergency hoisting facilities.

§ 57.12 [Amended]

U. Section 57.12 "Electricity" is proposed to be amended as follows:

239. It is proposed to revise mandatory standard 57.12–1 which is applicable to surface and underground as follows:

57.12–1 *Mandatory.*—Electrical circuits and equipment shall be protected against overloads and short circuits by automatic-trip circuit breakers or fuses. Such circuit breakers or fuses shall be capable of interrupting overloads and short circuits without damage to the circuit or equipment. Overload protective devices shall open all ungrounded conductors of the circuit whenever any one conductor becomes overloaded. Thermal devices used to protect the equipment and circuits against overloads shall be backed up by short-circuit protection.

240. It is proposed to revise mandatory standard 57.12–3 which is applicable to surface and underground as follows:

57.12–3 *Mandatory.*—Individual overload and short-circuit protection shall be provided for the trailing cables of mobile equipment.

241. It is proposed to revise mandatory standard 57.12–5 which is applicable to surface and underground as follows:

57.12–5 *Mandatory.* MNMSAC.—Mobile equipment shall not run over power conductors, nor shall loads be dragged over power conductors, unless the conductors are properly bridged or protected.

242. It is proposed to revise advisory standard 57.12–6 which is applicable to surface and underground and make it mandatory as follows:

57.12–6 *Mandatory.* MNMSAC.—Distribution boxes shall be provided with a disconnecting device for each branch circuit. Such disconnecting devices shall be equipped or designed in such a manner that it can be determined by visual observation that the circuit is deenergized when such devices are open, and shall be labeled to show which units they control.

243. It is proposed to revise advisory standard 57.12–8 which is applicable to surface and underground and make it mandatory as follows:

57.12–8 *Mandatory.* MNMSAC.—Power wires and cables shall be insulated adequately where they pass into or out of electrical compartments. Cables shall enter metal frames of motors, splice boxes, and electrical compartments only through proper fittings. When insulated wires, other than cables, pass through metal frames, the holes shall be substantially bushed with insulated bushings.

244. It is proposed to revise advisory standard 57.12–10 which is applicable to surface and underground and make it mandatory as follows:

57.12–10 *Mandatory.* MNMSAC.—Telephone and low-potential signal wire shall be protected, by isolation or additional insulation, from contacting energized power conductors or any other power source.

245. It is proposed to revise mandatory standard 57.12–11 which is applicable to surface and underground as follows:

57.12–11 *Mandatory.* MNMSAC.—High-potential electrical conductors shall be covered, insulated, or placed to prevent contact with low potential conductors.

246. It is proposed to revise advisory standard 57.12–12 which is applicable to surface and underground and make it mandatory as follows:

57.12–12 *Mandatory.* MNMSAC.—The potential on bare signal wires accessible to contact by persons shall not exceed 40 volts.

247. It is proposed to revise advisory standard 57.12–13 which is applicable to surface and underground and make it mandatory as follows:

57.12–13 *Mandatory.* MNMSAC.—Permanent splices and repairs made in power cables, including the ground conductor where provided, shall be:

(a) Mechanically strong with electrical conductivity as near as possible to that of the original,

(b) Insulated to a degree at least equal to that of the original, and sealed to exclude moisture, and

(c) Provided with damage protection as near as possible to that of the original, including good bonding to the outer jacket.

248. It is proposed to revise mandatory standard 57.12–14 which is applicable to surface and underground as follows:

57.12–14 *Mandatory.* MNMSAC.—Power cables energized to potentials in excess of 150 volts, phase-to-ground, shall not be moved with equipment unless sleds or slings, insulated from such equipment, are used. When such energized cables are moved manually, insulated hooks, tongs, ropes, or slings shall be used unless suitable protection for persons is provided by other means. This does not prohibit pulling or dragging of cable by the equipment it powers when the cable is physically attached to the equipment by suitable mechanical devices, and the cable is insulated from the equipment in conformance with other standards in this Part.

249. It is proposed to revise mandatory standard 57.12–16 which is applicable to surface and underground as follows:

57.12–16 *Mandatory.* MNMSAC.—Electrical equipment shall be deenergized before work is done on such equipment. Power switches shall be locked out or other measures taken which shall prevent the equipment from being energized without the knowledge of the individuals working on it. Suitable warning notices shall be posted at the power switch and signed by the individuals who are to do the work. Such locks or preventive devices shall be removed only by the persons who installed them or by authorized personnel.

250. It is proposed to revise mandatory standard 57.12–28 which is applicable to surface and underground as follows:

57.12–28 *Mandatory.* MNMSAC.—Continuity and resistance of grounding systems shall be tested immediately after installation, repair, and modification; and annually thereafter. A record of the most recent tests shall be made available to the Secretary.

251. It is proposed to revise advisory standard 57.12–34 which is applicable to surface and underground and make it mandatory as follows:

57.12–34 *Mandatory.* MNMSAC.—Portable extension lights, and other lights that by their location present a shock or burn hazard, shall be guarded.

252. It is proposed to revise standard 57.12–42 which is applicable to surface and underground and make it mandatory as follows:

57.12–42 *Mandatory.* MNSAC.—Both rails shall be bonded or welded at every joint and rails shall be crossbonded at least every 200 feet if the track serves as the return trolley circuit. When rails are moved, replaced, or broken bonds are discovered, they shall be re-bonded within three working shifts.

253. It is proposed to revoke advisory standard 57.12–70, and to revise advisory standard 57.12–69 which is applicable to surface only and make it mandatory as follows:

57.12–69 *Mandatory.* MNMSAC.—Each undergrounded power conductor or telephone wire directly exposed to lightning that leads underground shall be equipped with suitable lightning arrestors of approved type within 100 feet of the point where the circuit enters the mine. Lightning arrestors shall be connected to a low resistance grounding medium on the surface and shall be separated from neutral grounds by a distance of not less than 25 feet.

254. It is proposed to revise advisory standard 57.12–81 which is applicable to underground only and make it mandatory as follows:

57.12–81 *Mandatory.* MNMSAC.—All metallic pipelines, 1,000 feet or more in length running parallel to trolley tracks, that are used as a ground return circuit shall be bonded to the return circuit rail at the ends of the pipeline and at intervals not to exceed 500 feet.

255. It is proposed to revise advisory standard 57.12–83 which is applicable to underground only and make it mandatory as follows:

57.12–83 *Mandatory.* MNMSAC.—Power cables in shafts and boreholes shall be fastened securely in such a manner as to prevent undue strain on the sheath, insulation, or conductors.

256. It is proposed to revise advisory standard 57.12–84 which is applicable to underground only and make it mandatory as follows:

57.12–84 *Mandatory.* MNMSAC.—Disconnecting switches that can be opened safely under load shall be provided underground at all branch circuits extending from primary power circuits near shafts, adits, levels, and boreholes.

§ 57.15 [Amended]

V. Section 57.15 "Personal protection is" proposed to be amended as follows:

257. It is proposed to revise advisory standard 57.15–6 which is applicable to surface and underground and make it mandatory as follows:

57.15–6 *Mandatory.* MNMSAC.—Special protective equipment and clothing shall be provided, maintained in a sanitary and reliable condition and used whenever (1) hazards of process or environment, (2) chemical hazards, (3) radiological hazards, or (4) mechanical irritants are encountered in a manner capable of causing injury or impairment.

258. It is proposed to add a new mandatory standard 57.15–14 which is applicable to surface and underground as follows:

57.15–14 *Mandatory.*—Quick - drenching facilities for flushing of the eyes and body shall be provided for immediate emergency use within the work area at operations where injurious corrosive materials are used or handled.

W. Section 57.19 "Man hoisting" is proposed to be amended as follows:

259. It is proposed to revise mandatory standard 57.19–7 as follows:

57.19–7 *Mandatory.*—All hoists shall be provided with devices to prevent overtravel. Hoists for shafts exceeding 100 feet in depth also shall be provided with overspeed devices.

(a) The overtravel devices shall: (1) Be directly activated by the conveyance travel, or be directly driven from the hoist drum and synchronized with the movement of the conveyance;

(2) When activated, cause the hoist drum or traction wheel brakes to bring the conveyance to a safe stop; and

(3) Be provided with back-out switches.

(b) The overspeed devices shall: (1) Be directly driven from the hoist drum;

(2) When activated, cause the hoist drum or traction wheel brakes to bring the conveyance to a safe stop;

(3) Activate the control at a setting not to exceed the rated man-hoisting speed by more than 15 percent; and

(4) Monitor effectively the speed of the conveyance at any point of its travel so that safe travel and safe stops can be effected.

260. It is proposed to revise advisory standard 57.19–8 and make it mandatory as follows:

57.19–8. *Mandatory.* MNMSAC.—Where creep or slip may alter the effective position of safety devices, friction hoists shall be equipped with synchronizing mechanisms that recalibrate the overtravel devices and position indicators.

261. It is proposed to revise advisory standard 57.19–11 and make it mandatory as follows:

57.19–11 *Mandatory.* MNMSAC.—Flanges on drums shall extend radially a minimum of 4 inches or three rope diameters beyond the last wrap, whichever is the lesser.

262. It is proposed to revise advisory standard 57.19–12 and make it mandatory as follows:

57.19–12 *Mandatory.* — Where grooved drums are used, the grooves shall be of the proper size and pitch for the ropes used. When new rope is installed, the groove of drums shall be machined as needed to assure the size and pitch recommended by the manufacturer for the new rope.

263. It is proposed to add a new mandatory standard 57.19–14 as follows:

57.19–14 *Mandatory.* MNMSAC.—In a friction hoist installation, tapered guides or other approved devices shall be installed above and below the limits of regular travel of the conveyance and arranged to prevent overtravel in the event of failure of other devices.

264. It is proposed to add a new mandatory standard 57.19–15 as follows:

57.19–15 *Mandatory.*—Hooks, shackles, and other attachments that are used to connect a conveyance to the hoist rope shall be individually approved for strength as exceeding rated breaking strength of the rope to which the hook, shackle, or other attachment is connected by a factor of at least 10 percent. Hooks, shackles, and other attachments that have been modified or repaired shall be reapproved before returning to service. Proof of such approval for each hook, shackle, and other attachments in use shall be available for inspection by the Secretary or his duly authorized representative.

265. It is proposed to add a new mandatory standard 57.19–16 as follows:

57.19–16 *Mandatory.*—All cages and skips used for lowering or raising of persons in a mine shall comply with the following: (a) When a bonnet is required, the bonnet shall be made of not less than three-sixteenths (3/16) inch steel plate or of a noncombustible material having equivalent strength.

(b) The cage or skip shall be provided with not less than one-eight (1/8) inch sheet iron or steel side casing or a noncombustible material having equivalent strength.

(1) The side casing shall extend to a height of not less than five feet from the floor.

(2) The side casing shall have no openings through which a three-eighths (3/8) inch diameter rod will pass, excepting those openings that are necessary for signaling.

(c) The cage shall be equipped with a door, or doors, made of steel or other suitable noncombustible material that extends to a height of not less than five feet above the floor.

(1) All doors shall have no openings through which a three-eighths (3/8) inch diameter rod will pass, excepting those openings necessary for signaling, and they shall have a maximum clearance of two inches from the floor.

(2) All doors shall be arranged so that the doors cannot be opened outward from the cage.

(3) All doors shall be fitted with latches that will prevent accidental opening of a door.

(d) The bottom structural members and floor shall be constructed of steel or noncombustible material of sufficient strength to support the conveyance with maximum load at maximum emergency acceleration or deceleration.

(e) The conveyance shall be provided with an escape hatch in the top and/or an escape hatch in the side of the conveyance nearest the manway. Bonnets having a hinged moveable section weighing no more than 150 pounds may be considered as having escape hatches.

(f) Cages or skips suspended by a single hoisting rope shall be provided with safety catches. These safety catches shall:

(1) Be of sufficient strength to safely stop and hold the conveyance with its maximum passenger load at any point in the shaft from the maximum man-hoisting speed. The deceleration rate shall not exceed 3 times the acceleration due to gravity (3g's).

(2) Be performance tested before the conveyance is used to hoist men.

(3) Be visually inspected by a competent person each shift before the conveyance is used. The conveyance shall be rested on chairs or blocked at least once every seven operating days to test mechanical linkage.

266. It is proposed to add a new mandatory standard 57.19–17 as follows:

57.19–17 *Mandatory.* MNMSAC.—Each electric hoist shall be equipped with a manually-operable switch that will initiate emergency braking action to bring the conveyance and the counterbalance safety to rest. This switch shall be located within reach of the hoistman in case the manual controls of the hoist fail.

267. It is proposed to add a new mandatory standard 57.19–18 as follows:

57.19–18 *Mandatory.* MNMSAC.—An overtravel by-pass switch shall be installed on hoists, where necessary, that will allow the conveyance to travel through the overtravel position when the switch is held in the closed position by the hoistman. The overtravel by-pass switch shall return automatically to the open position when released by the hoistman.

268. It is proposed to revoke advisory standard 57.19–27. MNMSAC.

269. It is proposed to revise advisory standard 57.19–36 and make it mandatory as follows:

57.19–36 *Mandatory.*—Headframes shall be high enough to provide clearance for overtravel and safe stopping of the conveyances. This clearance shall be not less than 15 feet from the bottom of the sheaves or drum and the uppermost part of the highest rope connection of the conveyance when the conveyance is at its uppermost man-landing.

270. It is proposed to revise advisory standard 57.19–37 and make it mandatory as follows:

57.19–37 *Mandatory.*—Fleet angles shall not be greater than 1½ degrees. Fleet angles shall be not less than ½ degree unless a rope guiding device is used.

271. It is proposed to revise advisory standard 57.19–39 and make it mandatory as follows:

57.19–39 *Mandatory.*—Minimum diameters of head sheaves and hoist drums shall conform to the following specifications:

Rope construction:	*Diameter of sheaves and drum times rope diameter*
6×7 Classification	72
6×17 Seale	56
6×19 Seale	51
6×21 Filler wire	45
6×25 Filler wire	41
6×31	38
6×37	33
6×25 type B, flattened strand	45
6×27 type H, flattened strand	45
6×30 type G, flattened strand	45
8×29 Seale	36
8×19 Warrington	31
18×7	51

Drum and sheave diameters shall comply with the rope manufacturer's recommendations for man hoisting applications when ropes of other constructions are used.

272. It is proposed to revise advisory standard 57.19–40 and make it mandatory as follows:

57.19–40 *Mandatory.* MNMSAC.—Head, idler, knuckle, and curve sheaves shall have grooves of proper contour for the specific rope diameter used.

273. It is proposed to revise mandatory standard 57.19–50 as follows:

57.19–50 *Mandatory.* MNMSAC.—Buckets used to hoist persons during vertical shaft sinking operations shall: (a) Be securely attached to a crosshead when traveling in either direction between the lower and upper crosshead parking locations;

(b) Have overhead protection when the shaft depth exceeds 50 feet;

(c) Have sufficient depth or a suitably designed platform to transport persons safely in a standing position;

(d) Have devices to prevent accidental dumping where the bucket is supported by a bail attached to its lower half.

274. It is proposed to revise mandatory standard 57.19–54 as follows:

57.19–54 *Mandatory.* MNMSAC.—Where rope guides are used in shafts other than in shaft sinking operations, the rope guides shall be of a type of lock coil construction.

275. It is proposed to revise advisory standard 57.19–56 and make it mandatory as follows:

57.19–56 *Mandatory.* MNMSAC.—When automatic hoisting is used, a competent opertor of the hoist shall be readily available at or near the hoisting device while any person is underground.

276. It is proposed to revise advisory standard 57.19–57 and make it mandatory as follows:

57.19–57 *Mandatory.* MNMSAC.—No person shall operate a hoist unless within the

preceeding 12 months he has had a medical examination by a qualified, licensed physician who shall certify his fitness to perform this duty. Such certification shall be available at the mine.

277. It is proposed to revoke advisory standard 57.19–60. MNMSAC.

278. It is proposed to revise advisory standard 57.19–61 and make it mandatory as follows:

57.19–61 *Mandatory.* MNMSAC.—The safe speed for hoisting men shall be determined for each shaft, and this speed shall not be exceeded. Men shall not be hoisted at a speed faster than 2,500 feet per minute except in an emergency.

279. It is proposed to revise advisory standard 57.19–62 and make it mandatory as follows:

57.19–62 *Mandatory.* MNMSAC.—Maximum normal operating acceleration and deceleration shall not exceed 6 feet per second per second. During emergency braking, the declaration shall not exceed 16 feet per second per second.

280. It is proposed to revise advisory standard 57.19–66 and make it mandatory as follows:

57.19–66 *Mandatory.* MNMSAC.—In shafts inclined over 45 degrees, management shall determine and post in the conveyance or at each shaft station the maximum number of persons permitted to ride in a hoisting conveyance at any one time. Each person shall be provided a minimum of 1.5 square feet of floor space.

281. It is proposed to revise advisory standard 57.19–67 and make it mandatory as follows:

57.19–67 *Mandatory.* MNMSAC.—During shift changes, an authorized person shall be in charge of each man trip.

282. It is proposed to revise advisory standard 57.19–68 and make it mandatory as follows:

57.19–68 *Mandatory.* MNMSAC.—Men shall enter, ride, and leave conveyances in an orderly manner.

283. It is proposed to revise advisory standard 57.19–72 and make it mandatory as follows:

57.19–72 *Mandatory.*—When combinations of cages and skips are used in the same compartment, the skips shall be empty while men are being transported.

284. It is proposed to revise advisory standard 57.19–74 and make it mandatory as follows:

57.19–74 *Mandatory.*—Men shall not ride the bail, rim, bonnet, or crosshead of any shaft conveyance.

285. It is proposed to revise advisory standard 57.19–76 and make it mandatory as follows:

57.19–76 *Mandatory.* MNMSAC.—When men are hoisted, bucket speeds shall not exceed 500 feet per minute, and shall not exceed 200 feet per minute when within 100 feet of the intended station.

286. It is proposed to revise advisory standard 57.19–81 and make it mandatory as follows:

57.19–81 *Mandatory.*—Conveyances controlled by a hoistman, when not in use, shall be released and the conveyance shall be raised or lowered at least 10 feet from the floor of the landing.

287. It is proposed to add a new mandatory standard 57.19–83 as follows:

57.19–83 *Mandatory.* MNMSAC.—A manually operated device shall be installed on each electric hoist that will allow the conveyance or counterbalance to be removed from an overtravel position. Such device shall not release the brake, or brakes, holding the overtravelled conveyance or counterbalance until sufficient drive motor torque has been developed to assure movement of the conveyance or counterbalance in the correct direction only.

288. It is proposed to revise advisory standard 57.19–91 and make it mandatory as follows:

57.19–83 *Mandatory.* MNMSAC.—A manaccept hoisting instructions by voice communication unless the regular signaling systems are out of order. During such an emergency one authorized person shall be designated to direct movement of the conveyance.

289. It is proposed to revise advisory standard 57.19–93 and make it mandatory as follows:

57.19–93 *Mandatory.*—A standard code of hoisting signals shall be adopted and used at each mine. The movement of a shaft conveyance on a "one bell" signal shall be prohibited.

290. It is proposed to revise advisory standard 57.19–102 and make it mandatory as follows:

57.19–102 *Mandatory.* — MNMSAC. — A means shall be provided to guide the movement of a shaft conveyance.

291. It is proposed to revise advisory standard 57.19–106 and make it mandatory as follows:

57.19–106 *Mandatory.*—MNMSAC.—Shaft sets shall be kept in good repair and clean of hazardous material.

292. It is propsed to revise advisory standard 57.19–111 and make it mandatory as follows:

57.19–111 *Mandatory.*—MNMSAC.—Substantial fixed ladders shall be provided from the collar to as near the shaft bottom as practical during shaft-sinking operations, or an escape hoist powered by an emergency power source shall be provided. When persons are on the shaft bottom, a chain ladder, wire rope ladder, or other extension ladders shall be used from the fixed ladder or lower limit of the escape hoist to the shaft bottom.

293. It is proposed to revise advisory standard 57.19–121 and make it mandatory as follows:

57.19–121 *Mandatory.*—MNMSAC.—Complete records shall be kept for three years of inspections, tests, and maintenance of shafts and hoisting equipment.

294. It is proposed to revise advisory standard 57.19–122 and make it mandatory as follows:

57.19–122 *Mandatory.*—MNMSAC. — Parts used to repair hoists shall have properties that will insure the proper and safe function of the hoist.

295. It is proposed to revise advisory standard 57.19–123 and make it mandatory as follows:

57.19–123 *Mandatory.* MNMSAC. — Wire ropes shall be lubricated or treated with dressing as recommended or approved by the rope manufacturer.

296. It is proposed to revise advisory standard 57.19–124 and make it mandatory as follows:

57.19–124 *Mandatory.*—Ropes other than those on friction hoists shall be cut off and reconnected to the conveyance at regular intervals at least five times during the anticipated life of the rope, or more frequently if inspection shows it necessary; cutoff intervals shall not exceed 6 months for ropes with life of more than 3 years. At least 6 feet shall be cut from the rope above the highest connection; this portion shall be examined for corrosion, damage, wear, and fatigue.

297. It is proposed to revise advisory standard 57.19–125 and make it mandatory as follows:

57.19–125 *Mandatory.*—Hoist ropes wound on the drum in multiple layers shall be cut off and repositioned on the drum at least three times during the anticipated life of the hoist rope to distribute wear at change of layers and crossover points. The length of the cutoff at the drum end shall be at least ¾ of a wrap and shall not be a whole number multiple of the circumference of the drum.

298. It is proposed to revise advisory standard 57.19–126 and make it mandatory as follows:

57.19–126 *Mandatory.*—Ropes shall be calipered at least every two months to effectively determine the rate of wear and damage. Caliper measurements shall be taken:

(a) Immediately above the socket or clips and above the safety connection.

(b) Where the ropes rest on the sheaves.

(c) Where the ropes leave the drums when the conveyances are at the regular stopping points.

(d) Where a layer of rope begins to overlap another layer on the drum.

(e) At 100-foot intervals; measurements shall be made midway between the last previously calipered points.

299. It is proposed to revoke advisory standard 57.19–127. MNMSAC.

300. It is proposed to revise advisory standard 57.19–130 and make it mandatory as follows:

57.19–130 *Mandatory.*—Empty man conveyances shall be operated up and down shafts at least one round trip before:

(a) Hoisting men after any shaft or related equipment repairs, and

(b) Regular man trips.

301. It is proposed to revise advisory standard 57.19–131 and make it mandatory as follows:

57.19–131 *Mandatory.* — Conveyance connections shall be inspected each day that they are in use.

302. It is proposed to revise advisory standard 57.19–132 and make it mandatory as follows:

57.19–132 *Mandatory.*—Safety catches shall be inspected daily; drop tests shall be made at the time of installation. Every operating day the cage shall be rested on chairs or proper blocking to check the operation or activation of the safety catches by allowing the rope to be slacked suddenly.

303. It is proposed to revise advisory standard 57.19–133 and make it mandatory as follows:

57.19–133 *Mandatory.* MNMSAC.—Operating shafts shall be inspected at least weekly. Idle shafts shall be inspected immediately before use.

304. It is proposed to revise advisory standard 57.19–134 and make it mandatory as follows:

57.19–134 *Mandatory.* MNMSAC.—Sheaves in operating shafts shall be inspected weekly and kept properly lubricated.

305. It is proposed to revise advisory standard 57.19–135 and make it mandatory as follows:

57.19–135 *Mandatory.* MNMSAC.—Rollers used in operating inclined shafts shall be lubricated, properly aligned, and kept in good repair.

X. Section 57.20 "Miscellaneous" is proposed to be amended as follows:

306. It is proposed to revise mandatory standard 57.20–2 which is applicable to surface and underground as follows:

57.20–2 *Mandatory.* MNMSAC.—An adequate supply of potable drinking water shall be provided at all active working areas.

(a) The common drinking cup and containers from which drinking water must be dipped or poured are prohibited.

(b) Where single service cups are supplied, a sanitary container for unused cups and a receptacle for used cups shall be provided.

(c) When water is cooled by ice, the ice shall either be of potable water or shall not come in contact with the water.

(d) Potable water outlets shall be posted.

(e) Potable water systems shall be constructed to prevent backflow or backsiphonage of non-potable water.

307. It is proposed to revise advisory standard 57.20–3 which is applicable to surface and underground and make it mandatory as follows:

57.20–3 *Mandatory.* MNMSAC.—At all mining operations:

(a) Workplaces, passageways, storerooms, and service rooms shall be kept clean and orderly.

(b) The floor of every workplace shall be maintained in a clean and, so far as possible, a dry condition. Where wet processes are used, drainage shall be maintained, and false floors, platforms, mats, or other dry standing places shall be provided where practicable.

(c) Every floor, working place, and passageways shall be kept free from protruding nails, splinters, holes, or loose boards, as practicable.

308. It is proposed to add a new mandatory standard 57.20–11 which is applicable to surface and underground as follows:

57.20–11 *Mandatory.* MNMSAC.—Areas where health or safety hazards exist that are not immediately obvious to employees shall be barricaded, or warning signs shall be posted at all approaches. Warning signs shall be readily visible, legible, display the nature of the hazard, and any protective action required.

309. It is proposed to add a new mandatory standard 57.20–12 which is applicable to surface and underground as follows:

57.20–12 *Mandatory.* MNMSAC—Toxic materials used in conjunction with or discarded from mining or milling of a product shall be plainly marked or labeled so as to positively identify the nature of the hazard and the protective action required.

310. It is proposed to add a new mandatory standard 57.20–13 which is applicable to surface and underground as follows:

57.20–13 *Mandatory.* MNMSAC.—Receptacles with covers shall be provided and used for the disposal of waste food and associated materials. They shall be emptied frequently and shall be maintained in a clean and sanitary condition.

311. It is proposed to add a new mandatory standard 57.20–14 which is applicable to surface and underground as follows:

57.20–14 *Mandatory.* MNMSAC.—No person shall be allowed to consume or store food or beverages in a toilet room nor in any area exposed to a toxic material.

§ 57.21 [Amended]

Y. Section 57.21 "Gassy mines" is proposed to be amended as follows:

312. It is proposed to revise mandatory standard 57.21–12 as follows:

57.21–12 *Mandatory.* MNMSAC.—Immediately before and continuously during welding or cutting with an arc or open flame or soldering with an open flame, in other than fresh air, or in places where methane is present or may enter the air current, a competent person shall test for methane with a device approved by the Secretary for detecting methane.

313. It is proposed to revise mandatory standard 57.21–13 as follows:

57.21–13 *Mandatory.* MNMSAC.—Welding or cutting with an arc of open flame or soldering with an open flame shall not be performed in atmospheres containing more than 1.0 percent of methane as determined by a device approved by the Secretary for detecting methane.

314. It is proposed to revise advisory standard 57.21–22 and make it mandatory as follows:

57.21–22 *Mandatory.* MNMSAC.—The main intake and return air currents in mines shall be in separate shafts, slopes, or drifts, except that during shaft or slope development, vent tubing may be used in the same opening. Until a second opening to the surface can be provided, single shafts used for intake and return air shall be provided with a curtain wall or partition.

315. It is proposed to revoke mandatory standard 57.21–26, MNMSAC.

316. It is proposed to revise mandatory standard 57.21–27 as follows:

57.21–27 *Mandatory.* MNMSAC.—When the main fan or fans have been shut down with all men out of the mine, no person, other than those competent to examine the mine, or other authorized persons, shall go underground until the fans have been started and the mine is examined for methane and other hazards and declared safe.

317. It is proposed to revise mandatory standard 57.21–30 follows:

57.21–30 *Mandatory.* MNMSAC.—Auxiliary fans shall be of a permissible type, maintained in permissible condition, so located and operated to avoid recirculation of air. Auxiliary fans shall not be used to ventilate any working place during interruption of normal mine ventilation. If the auxiliary fan is stopped or fails, the electrical equipment in the affected area shall be stopped and the power disconnected at the power source until ventilation in the affected area is restored. Tests shall be made at the fan for methane before auxiliary fans are started. The air passing over or through auxiliary fan units shall not exceed 1.0 percent of methane.

318. It is proposed to revise advisory standard 57.21–31 and make it mandatory as follows:

57.21–31 *Mandatory.* MNMSAC.—Auxiliary fans shall be inspected by competent persons at least twice each operating shift.

319. It is proposed to revoke mandatory standard 57.21–32. MNMSAC.

320. It is proposed to revise mandatory standard 57.21–33 as follows:

57.21–33 *Mandatory.* MNMSAC.—The volume and velocity of the current of air coursed through all active areas shall be sufficient to dilute, render harmless, and carry away methane, smoke, fumes, and dust.

321. It is proposed to revise mandatory standard 57.21–34 as follows:

57.21–34 *Mandatory.* MNMSAC.—The quantity of air coursed through the last open crosscut in pairs or sets of entries or through other ventilation openings nearest the face, shall be at least 6,000 cubic feet per minute, or 9,000 cubic feet per minute in longwall and continuous miner sections.

322. It is proposed to revise advisory standard 57.21–36 and make it mandatory as follows:

57.21–36 *Mandatory.* MNMSAC.—Permanently installed battery-charging stations and transformer stations in combustible areas shall be ventilated by separate splits of air conducted directly to return air courses. Permanently installed means intended to exist for 1 year or more.

323. It is proposed to revise mandatory standard 57.21–39 as follows:

57.21–39 *Mandatory.* MNMSAC.—If methane gas in excess of 1.0 percent is detected in the air not less than 12 inches from the back, face, and rib of an underground working place or places, adjustments shall be made in the ventilation immediately so that the concentration of methane gas in such air is reduced to 1.0 percent or less. While such changes or adjustments are underway and until they have been achieved, power to electric equipment located in such place shall be cut off, no other work shall be permitted in such place, and due precautions shall be carried out under the direction of the operator or his agent so as not to endanger other areas of the mine.

324. It is proposed to revise mandatory standard 57.21–40 as follows:

57.21–40 *Mandatory.* MNMSAC.—If 1.5 percent or higher concentration of methane gas is present in air returning from an underground working place or places, or is present in the air not less than 12 inches from the back, face, and rib of an underground working place, all men other than those persons referred to in Section 8(a) of the Federal Metal and Nonmetallic Mine Safety Act shall be withdrawn from the area of the mine endangered by such methane gas until the concentration of methane in such areas is reduced to 1.0 percent or less.

325. It is proposed to revise mandatory standard 57.21–41 as follows:

57.21–41 *Mandatory.* MNMSAC.—Air that has passed by an opening of any unsealed

abandoned area and contains 0.25 percent or more of methane shall be coursed directly to a return airway. Examinations of such air shall be conducted during the preshift examinations required by mandatory standard 57.21-59.

326. It is proposed to revoke advisory standard 57.21-47. MNMSAC.

327. It is proposed to revise mandatory standard 57.21-50 as follows:

57.21-50 *Mandatory.*—Damaged brattices, vent tubing, seals, stoppings, bulkheads, overcasts, regulators and all other equipment and installations used to course air throughout the mine shall be repaired immediately.

328. It is proposed to revise mandatory standard 57.21-52 as follows:

57.21-52. *Mandatory.* MNMSAC.—Entries or rooms shall not be started off entries beyond the last open crosscuts, except that room necks and entries not to exceed 18 feet in depth may be turned off entries beyond the last open crosscuts if such room necks or entries are kept free of accumulations of methane by use of line brattice or other adequate means.

329. It is proposed to revise advisory standard 57.21-53 and make it mandatory as follows:

57.21-23 *Mandatory.* MNMSAC.—Stoppings in crosscuts between intake and return airways, on entries other than room entries, shall be built of solid, substantial material; exposed surfaces shall be made of fire-resistant material or, if the material mined is combustible, stopping shall be made of noncombustible material.

330. It is proposed to revoke advisory standard 57.21-54. MNMSAC.

331. It is proposed to revise mandatory standard 57.21-57 as follows:

57.21-57 *Mandatory.* MNMSAC.—Doors which control the flow of air by being closed shall be kept closed, except when persons or equipment are passing through such doorways. Doors shall be plainly marked to indicate whether they shall be closed or open for ventilation control purposes.

332. It is proposed to revise mandatory standard 57.21-58 as follows:

57.21-58 *Mandatory.* MNMSAC.—Overcasts and undercasts shall be:

(a) Constructed tightly of noncombustible material.

(b) Of sufficient strength to withstand possible falls from the back.

(c) Kept clear of obstruction.

333. It is proposed to revise advisory standard 57.21-65 and make it mandatory as follows:

57.21-65 *Mandatory.*—At intervals not greater than seven days the mine foreman, or other equally competent person designated by the mine foreman, shall make examinations for hazardous conditions and for compliance with mandatory health and safety standards, and shall make tests for methane, toxic gases, and carbon monoxide. Such tests shall be made with devices approved by the Secretary at the following locations:

(a) In the return of each split where it enters the main return,

(b) On accessible pillar falls,

(c) At seals,

(d) In the main return,

(e) In at least one entry of each intake and return airway,

(f) In idle workings,

(g) In abandoned workings, insofar as conditions permit.

334. It is proposed to revise advisory standard 57.21-66 and make it mandatory as follows:

57.21-66 *Mandatory.* MNMSAC.—The mine foreman or other designated official shall read and countersign promptly the reports of the required examinations made by competent persons. Where such reports disclose hazardous conditions, the affected employees shall be so informed and such conditions shall be corrected promptly. If such conditions create an imminent danger, the operator shall withdraw all persons from, or prevent any person from entering, as the case may be, the area affected by such conditions, except those persons referred to in section 8(a) of the Federal Metal and Nonmetallic Mine Safety Act until such danger is abated. A responsible mine official at the next highest level of authority, if such level exists, shall also read and countersign at least weekly the required reports to insure that proper inspections have been made and remedial action taken.

335. It is proposed to revise mandatory standard 57.21-76 as follows:

57.21-76 *Mandatory.* MNMSAC.—Diesel-powered equipment shall not be taken into or operated in places where methane exceeds 1.0 percent at any point not less than 12 inches from the back, face, and rib.

336. It is proposed to revise mandatory standard 57.21-77 as follows:

57.21-77 *Mandatory.* MNMSAC.—Trolley wires and trolley feeder wires shall be on intake air and shall not extend into the last open crosscut or other ventilation opening. Such wires shall be kept at least 150 feet from pillar recovery workings.

337. It is proposed to revise mandatory standard 57.21-78 as follows:

57.21-78 *Mandatory.*—Only permissible equipment maintained in permissible condition shall be taken into or used beyond the last open crosscut or in places where 1.0 percent or more methane is present or may enter the air current.

338. It is proposed to revise mandatory standard 57.21-79 as follows:

57.21-79 *Mandatory.* MNMSAC.—Only permissible distribution boxes shall be used ing working places and other places where 1.0 percent or more of methane may be present or may enter the air current.

339. It is proposed to revoke mandatory standard 57.21-81. MNMSAC.

340. It is proposed to revise mandatory standard 57.21-99 as follows:

57.21-99 *Mandatory.* MNMSAC.—When blasting on shift, examinations for methane shall be made immediately before firing each shot or round, and again before other work is performed. Examinations shall be made by competent persons with devices approved by the Secretary for detecting methane.

341. It is proposed to revise mandatory standard 57.21-100 as follows:

57.21-100 *Mandatory.* MNMSAC.—Shots or rounds shall not be fired in places where 1.0 percent or more of methane is present at a point no less than 12 inches from the back, face, and rib. Tests to determine the presence of methane sall be made by a competent person with devices approved by the Secretary for detecting methane.

342. It is proposed to revise advisory standard 57.21-101 and make it mandatory as follows:

57.21-101 *Mandatory.* MNMSAC.—Shots and rounds shall be fired by competent persons.

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